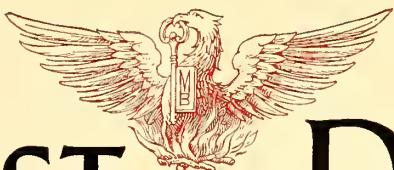




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No. 3129
VOL. CXXXII

JANUARY 27, 1940

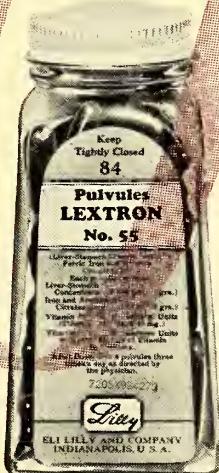
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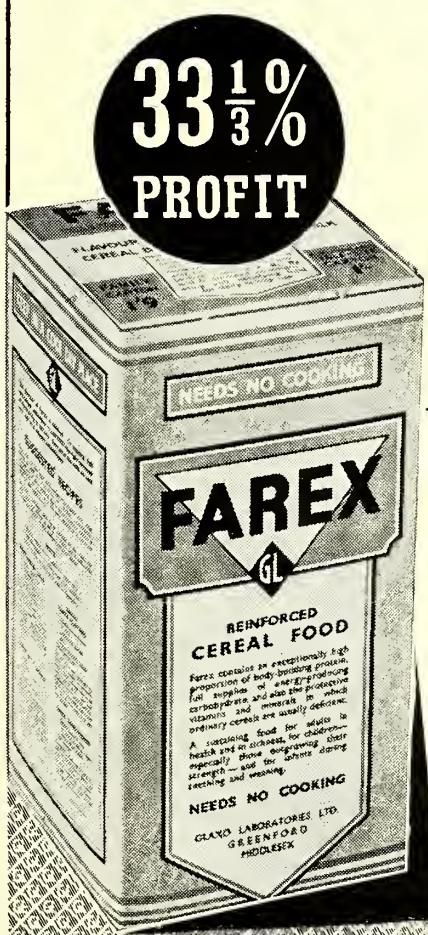


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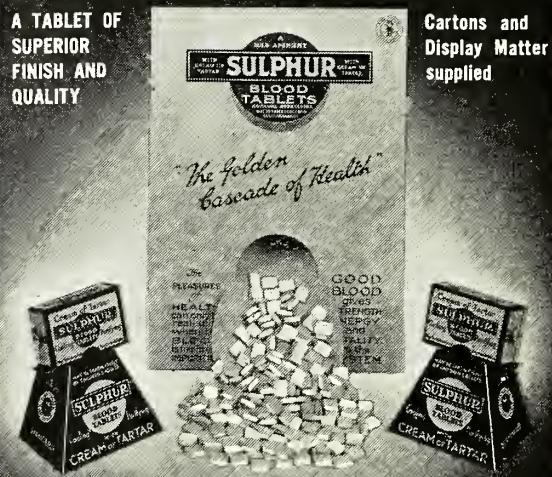
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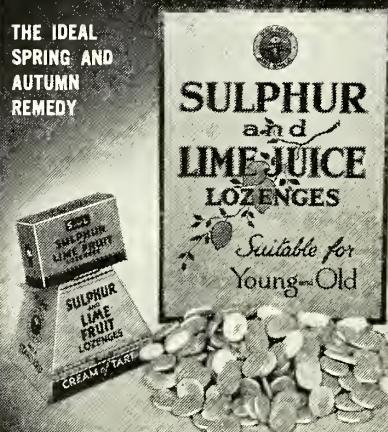
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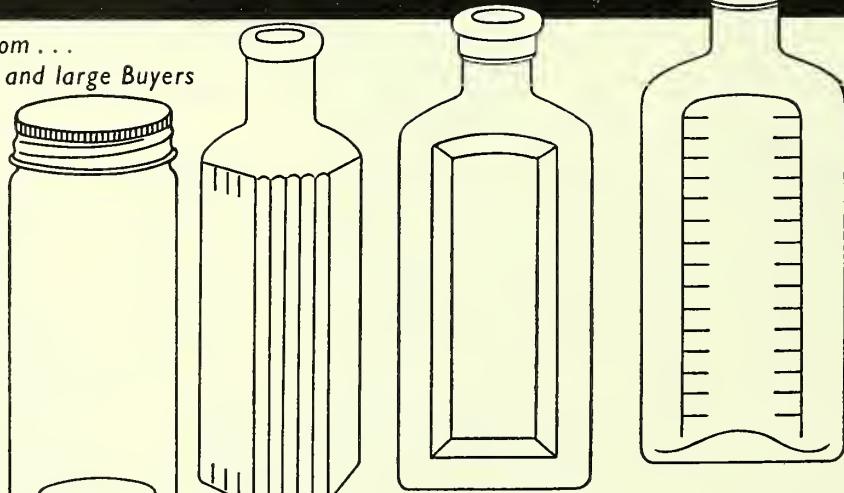
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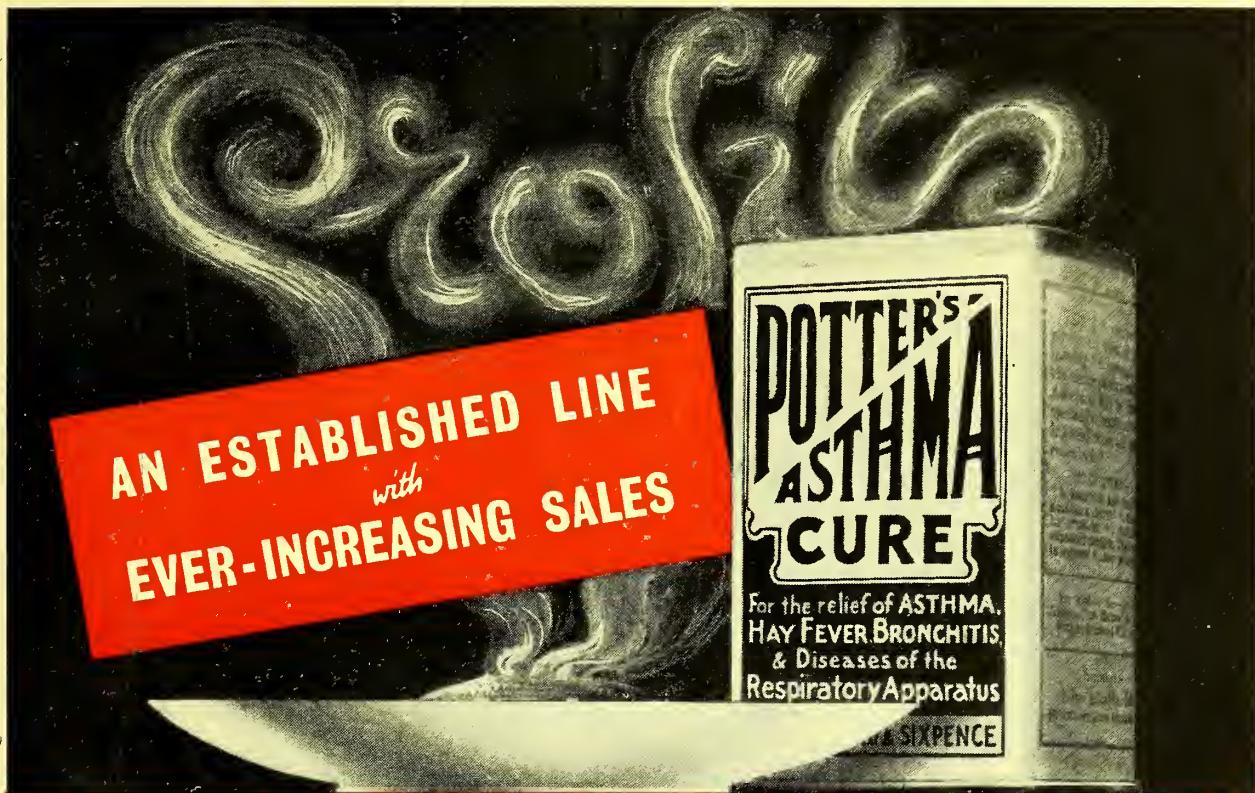
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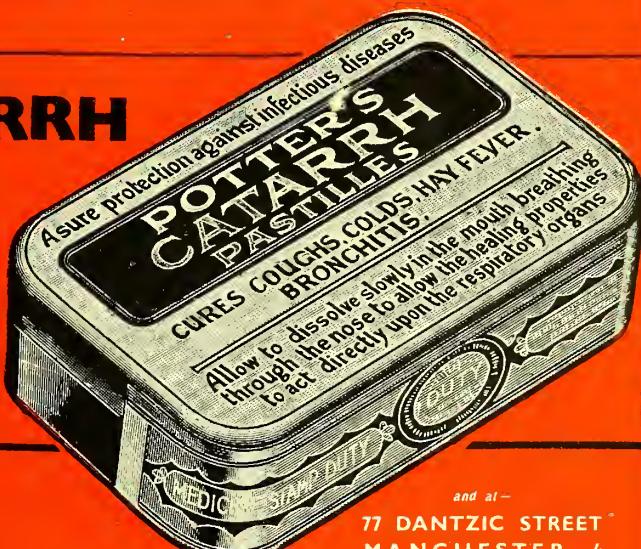


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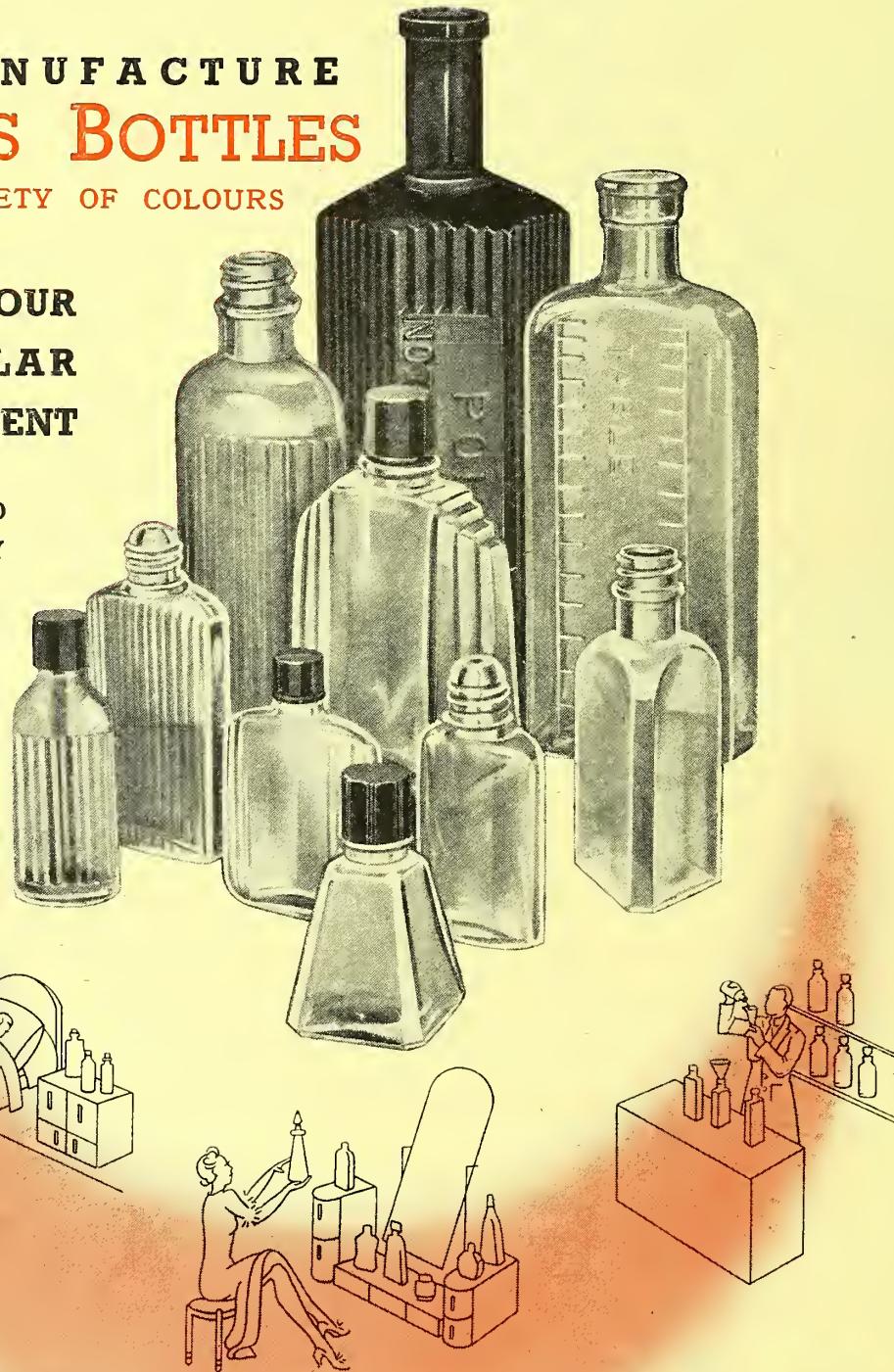
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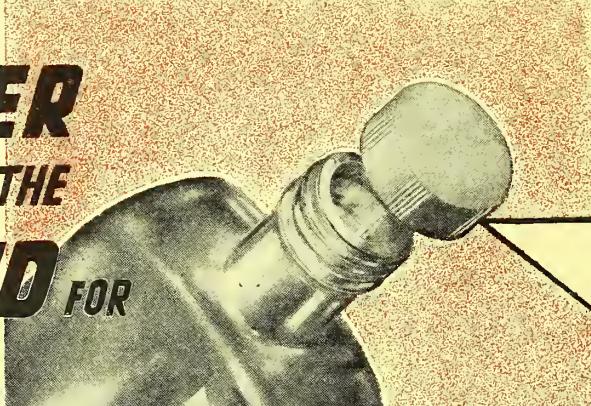
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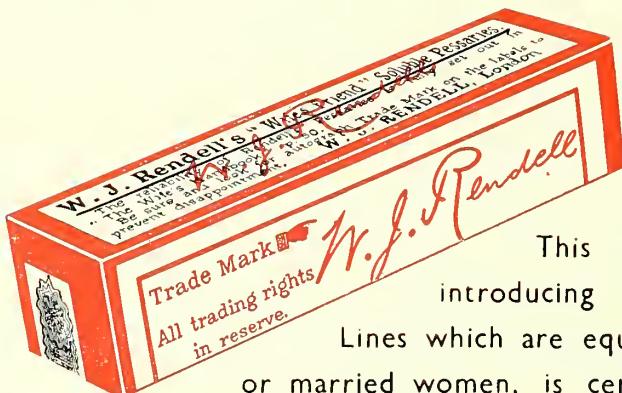


For over fifty years the name 'RENDELL' has been associated with one particular product, well known and recommended throughout the World.

And now three new products are introduced, all for feminine hygiene and therefore of intimate importance to present users of 'RENDELLS'.

These new products, fully described overleaf, are sponsored under the guidance of the highest Medical Authorities and may therefore be recommended with full confidence and the sure knowledge that they conform to the high Rendell standard of excellence.

RENDELLS



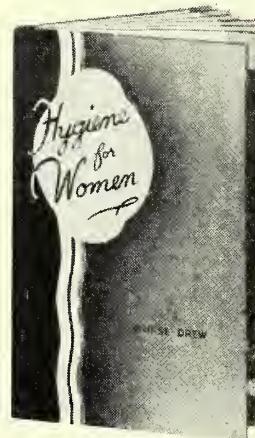
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MENSINOLE For feminine pains, headaches, neuralgia and all other feverish conditions. In tubes of 12 Tablets 1/3

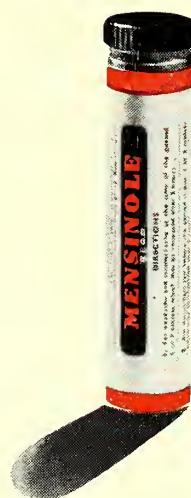
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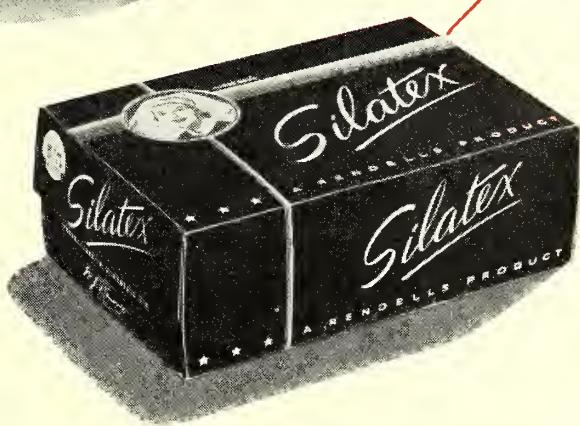
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MENSINOLE



SANTRON



SILATEX



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This embraces the Daily Press, Periodicals and Women's Journals. A comprehensive booklet is also included with every pack which will give these new lines instant publicity.

Supplies are obtainable through the usual wholesale channels and it is advisable to place your order in good time in readiness for the demand.

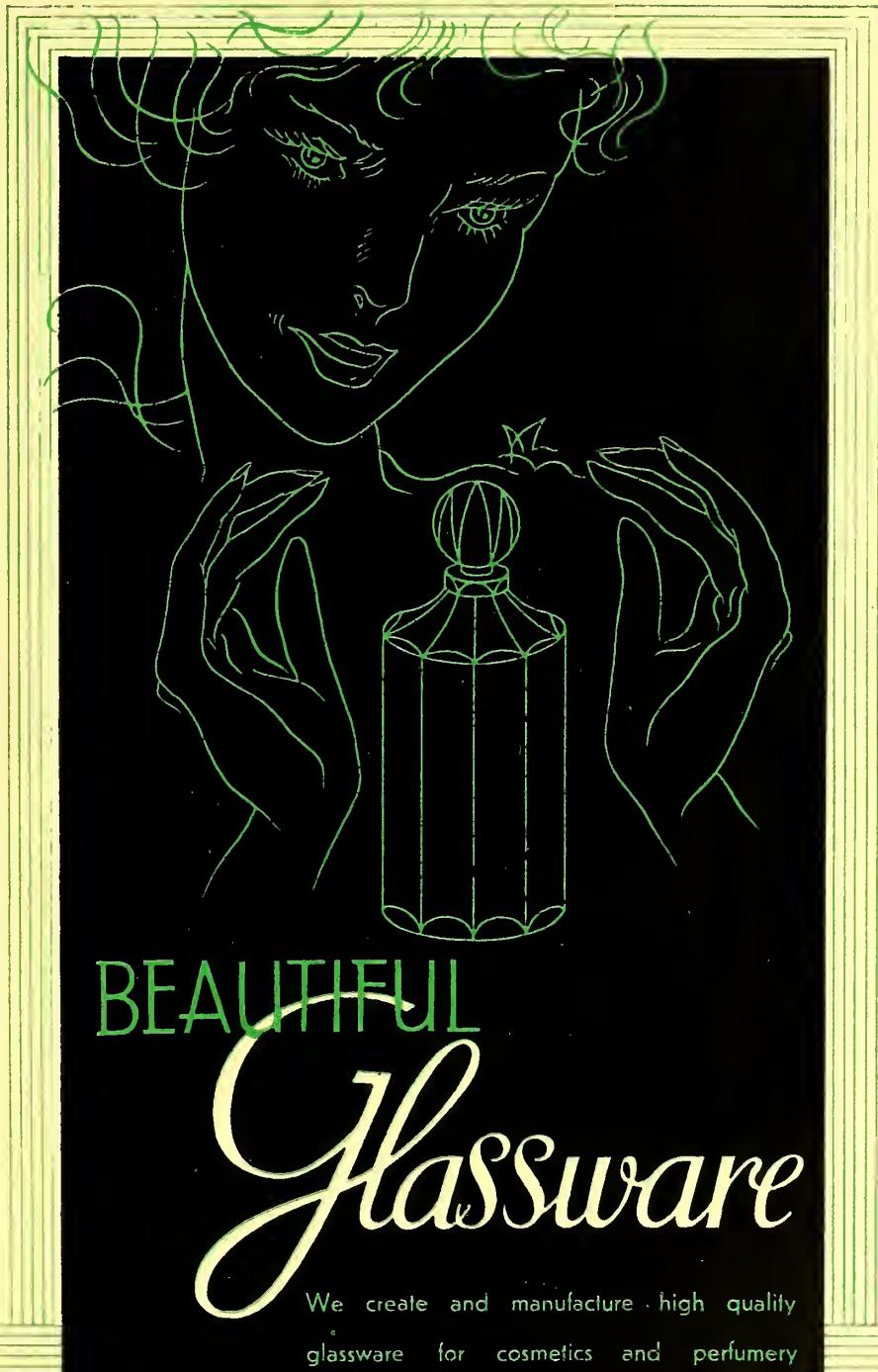
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"	16/1 , ,	1/10

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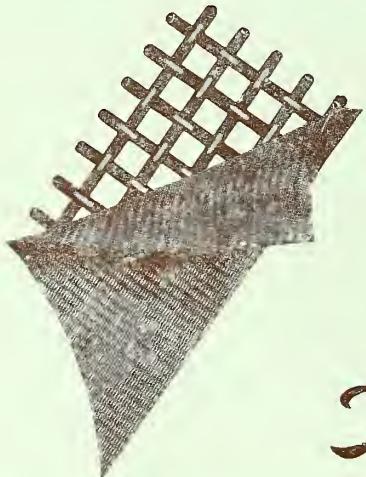
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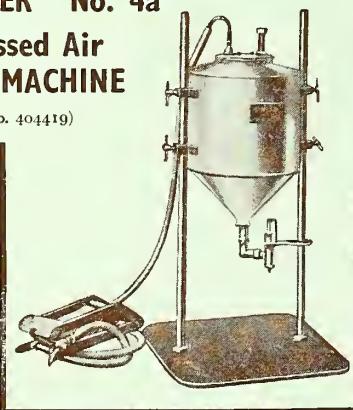
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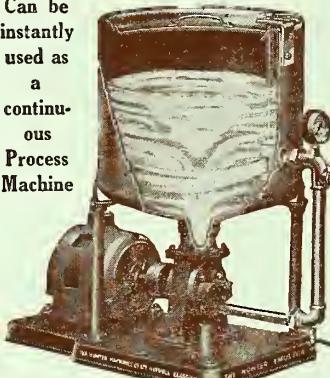
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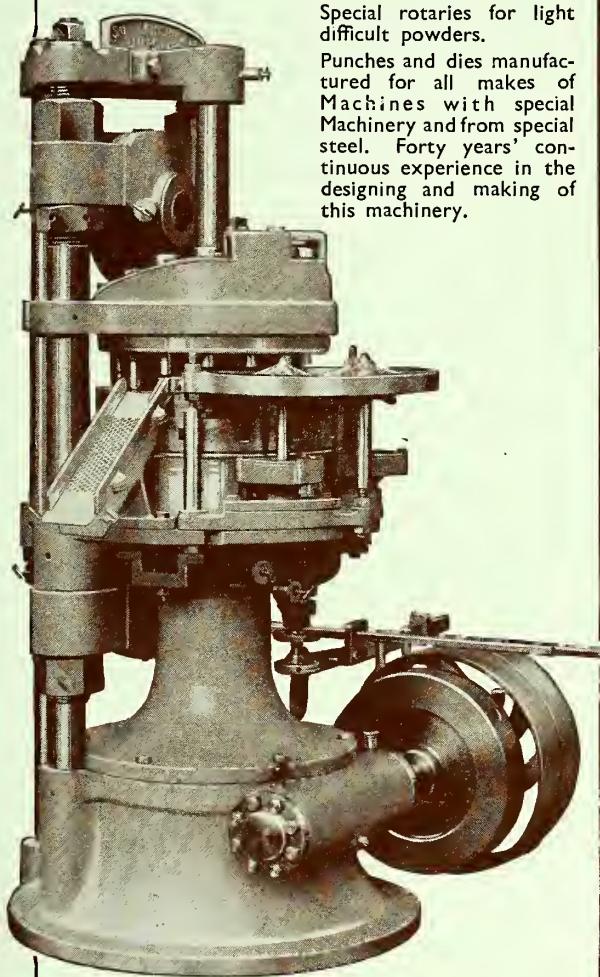
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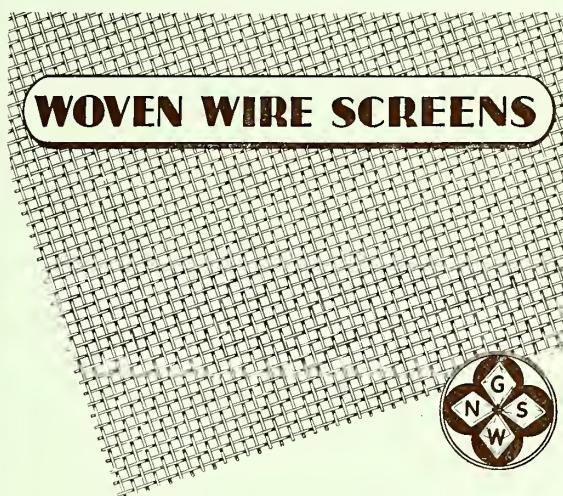
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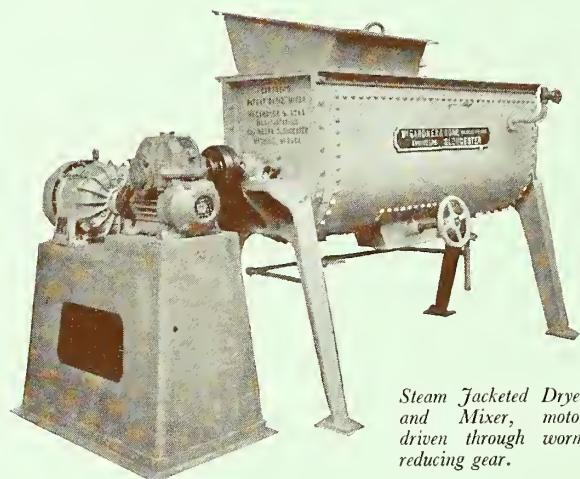
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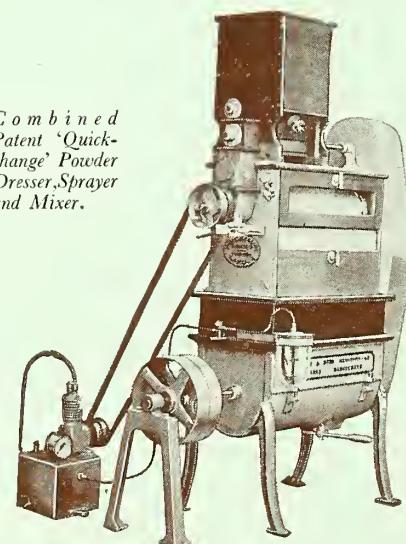
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January 27, 1940

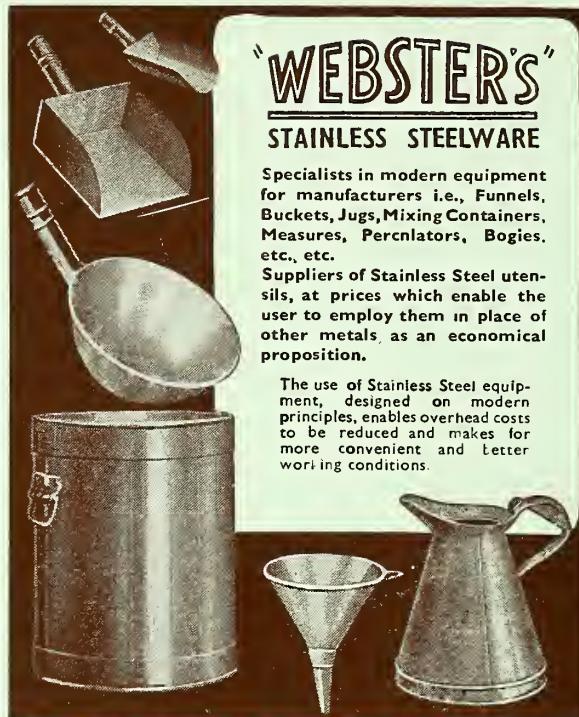
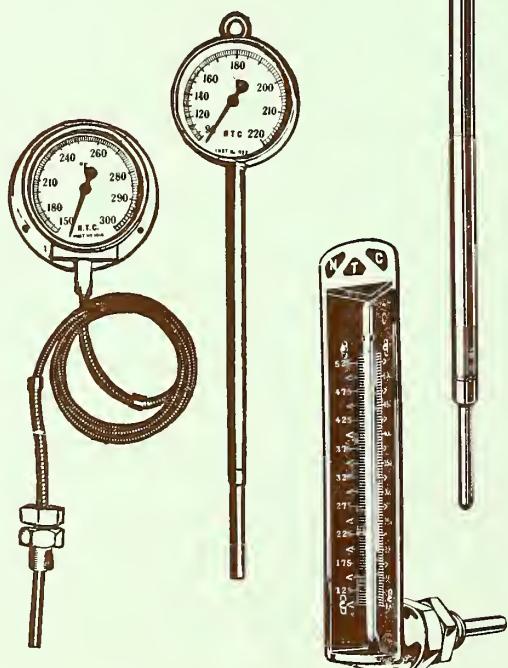
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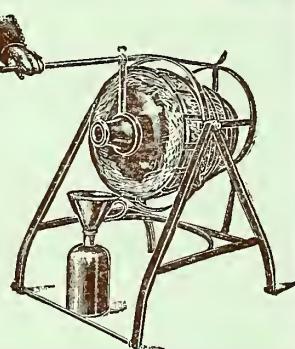
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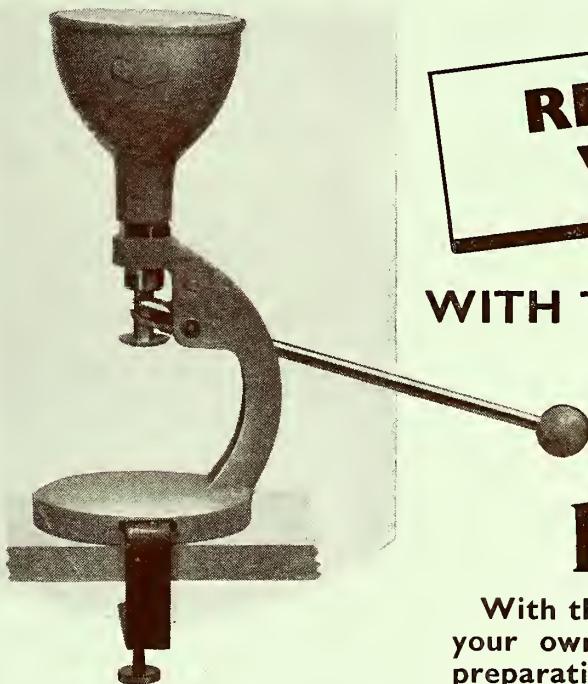
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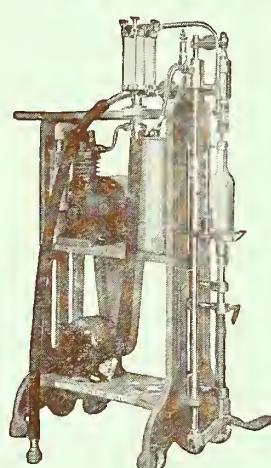
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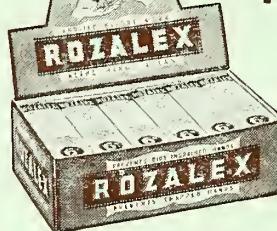
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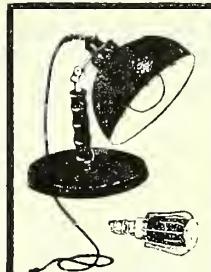
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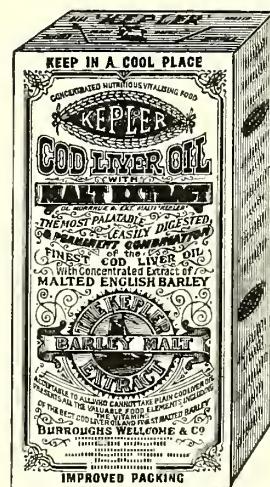
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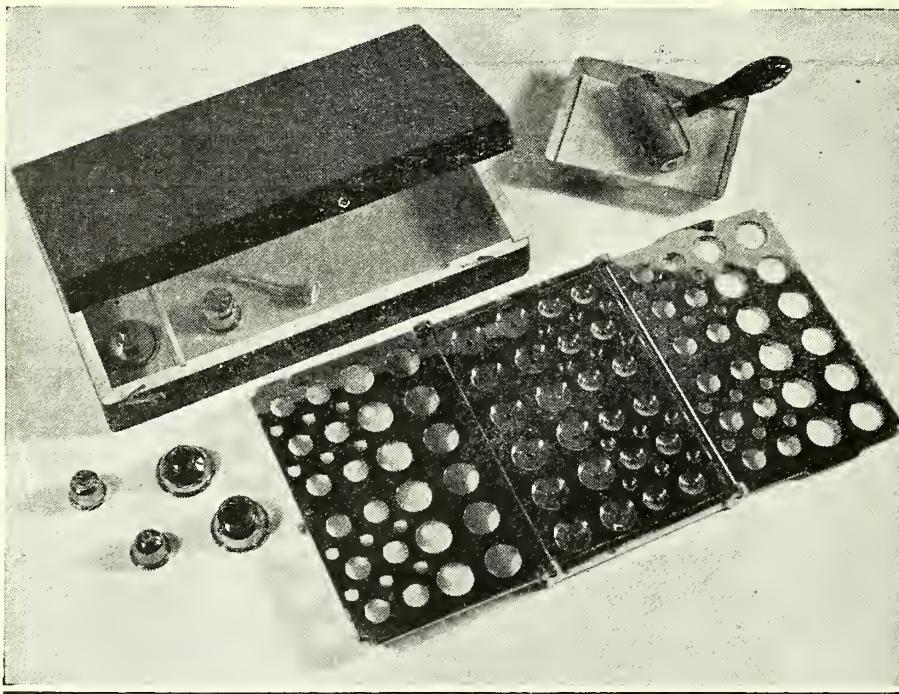


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News of the Week

British Pharmaceutical Conference

The Executive of the British Pharmaceutical Conference have decided that every endeavour should be made to maintain the continuity of the Conference meetings during war-time. It is proposed that the Conference should be held this year on a modified scale, and it is hoped to arrange a meeting in London during the third week in June. The honorary secretaries will be glad to hear from research workers in pharmacy and subjects allied to pharmacy who may be able to communicate papers to that meeting. Papers from pharmacists and others on subjects of practical pharmaceutical interest will be welcomed. Authors are requested to inform the secretaries (Messrs. C. E. Corfield and G. R. Boyes, 17 Bloomsbury Square, London, W.C.2) as soon as possible of the titles of the papers they intend to submit.

Government Contracts

Certain persons purporting to have special facilities for approaching the Ministry of Supply and obtaining contracts are offering their services to smaller firms particularly as intermediaries on a commission or subscription basis. The Ministry of Supply state that anyone wishing to be considered for Ministry contracts is free to apply direct to the Ministry or to the Area Officers of the Ministry, and that all such applications are dealt with on their merits. There should, therefore, be no necessity to employ intermediaries who, in return for a financial consideration, represent themselves as being able to influence contracts. The Ministry's aim is to make as full use of small firms as possible, but it is considered that small firms usually would be most useful as sub-contractors to main contractors. Groups of small firms may usefully be ranged under a parent firm to form units large enough to undertake complete contracts. Any groups which may be formed in the future would be required to observe similar conditions to those already laid down for the groups of firms. The required conditions are: (1) the firms who will form the group should be named; (2) they shall agree to allow one firm only to tender and that this firm will enter into the contractual obligations which the Ministry requires; (3) the firms constituting the group will provide written evidence to the Ministry that they agree to these arrangements, in particular of one firm acting on their behalf; (4) while the allocation of work between the constituent firms is no direct concern of the Ministry, the parent firm shall state on the tender form, for the purpose of inspection, the names of the firms concerned and the address of the premises at which the work will be carried out; (5) each of the constituent firms shall agree to the Fair Wages Clause and shall conform to the regulations applicable to the King's Roll; (6) if any of the firms are already on the Ministry's list they shall not be invited to tender as separate units if they are within the group.

Proprietary Articles Trade Association

ADDITIONS TO PROTECTED LIST.—*Tampax, Ltd.* (Distributors: *Splendor, Ltd.*). Tampax, packet of ten, 1s. 6d., 1s. 6d. doz.; six, 1s., 9s. doz.; three, 6d., 4s. 6d. doz.

ALTERATIONS.—*Cow & Gate, Ltd.* Increased prices February 1: Cow & Gate half-cream food, 3s., 28s. 9d. doz.; £6 orders, 28s. 1d. doz.; £12 orders, 27s. 3d. doz.; 8s. 3d., 79s. 2d. doz.; £6 orders, 77s. 3d. doz.; £12 orders, 75s. 2½d. doz. *Southall Bros. & Barclay, Ltd.*, A.1 cod liver oil, 4 oz., 1s., 7s. 3d. doz.; 8 oz., 1s. 8d., 12s. doz.; 16 oz., 3s., 21s. 6d. doz.; 32 oz., 5s. 6d., 39s. 9d. doz. Twelve-dozen lots of 8-oz. size or equivalent: 4 oz., 6s. 9d. doz.; 8 oz., 11s. 6d. doz.; 16 oz., 20s. 6d. doz.; 32 oz., 37s. 9d. doz.

DELETIONS.—*Southall Bros. & Barclay, Ltd.*, A.1 olive oil. *Tenz, Ltd.*, Tenz tablets.

Inquest

At Leicester, on January 20, an inquiry was held into the circumstances attending the deaths of two workmen at the factory of John Richardson & Co. (Leicester), Ltd., manufacturing chemists, following an explosion (see *C. & D.*, January 20, p. 39). A workman, who was also injured, said that a mill for grinding granules in the pill department was blown to bits in the explosion. Shortly before the explosion occurred three tablet compressing machines had been at work, and Hall, one of the dead men, had been preparing granules, the ingredients of which were aspirin compounds. There was no explosive commodity in any of the mixtures Hall had dealt with during the day. The foreman pill-maker was asked questions about nitro-glycerin. He said that some was kept in a bottle in a cupboard, but no one was permitted to touch it without his permission. Nothing had been made which required nitro-glycerin and the bottle was found intact in the cupboard after the explosion. Investigation among the débris led to the discovery of a stock formula for the making of throat tablets, work which Hall did in his spare time. Potassium chlorate was one of the ingredients in the compound which Hall would be making, and if this ingredient had been put through the machine which had disappeared in the explosion, the foreman thought it would be to save time. None of the compound had been found since the explosion, and the foreman thought it likely it was this compound that was being passed through the machine by Hall, who must have known that he was doing wrong. Cross-examined, the foreman said there was no doubt whatever that the explosion occurred inside this mill, which was cleaned up after every operation. He saw Hall using it in the earlier part of the

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Late news in
Coloured Supplement

day for an aspirin compound. Answering another question, the foreman said the potassium chlorate product was for stock. He was quite sure that this compound had never been put through this mill. If it had it was against instructions. In reply to the factory inspector, witness said Hall had been given instructions not to pass potassium chlorate through this mill. Hall would be well aware of this. The factory inspector said that he visited the premises after the explosion and could find no evidence of an explosive material having been passed through. As the *débris* was cleared up, it became evident that the mill was the centre of the explosion, but it was not until January 16 that any evidence was forthcoming that potassium chlorate had been passed through. The inspector demonstrated with the aid of two hammers and a little potassium chlorate how an explosion could occur and leave the metal clean afterwards. In returning a verdict of accidental death, the coroner said that in his opinion potassium chlorate was being put through the machine by Hall, who should have done the granulating by hand. He could not imagine that Hall did not know of the danger. He was probably taking a risk to save time.

Social Events

PHARMACY SCHOOL DANCE.—Nearly 300 persons, including many old students, attended the annual dance of the Liverpool School of Pharmacy held at Reece's, Liverpool, on January 18. Profits are being devoted to Red Cross purposes.

DONCASTER DANCE.—Some 200 chemists and friends attended the first dance of the Doncaster Branch of the Pharmaceutical Society, held on January 18. Mr. John Morgan (Member of Parliament for Doncaster), was present, having travelled from Essex for the function; Mr. Tom Williams, M.P., was also present.

PRESTON DINNER.—150 members and friends attended the annual dinner of the Preston Pharmacists' Association on January 11, in aid of the Mayoress's free buffet on Preston Station for men of H.M. Forces. Mr. W. G. Mercer presided. Whist drive prizewinners were Messrs. T. Sheridan, T. Durkin, and L. Chaloner, Mesdames F. A. Dixon, H. Myerscough, and W. F. Mercer.

"SQUARE" ASSOCIATION.—The annual dinner and dance of past and present students of the School of Pharmacy of the Pharmaceutical Society, at present domiciled at University College, Cardiff, was held at the Carlton Restaurant, Cardiff, on January 17. The new president (Mr. R. Vernon Lloyd, head of the pharmacy department, Cardiff Technical College) was chairman, and Professor A. Ferguson, Cambridge, was guest at the dinner.

NORTH STAFFS BRANCH SUPPER.—An informal supper was held recently at the Piccadilly Café, Hanley, when seventy members and friends of the North Staffs Branch of the Pharmaceutical Society were present. Mr. T. G. Lawley (chairman), in a short after-supper speech, remarked that of the last ten chairmen of the branch nine were present at the supper. The branch hoped to carry on as usual, except for the annual dinner and dance, which the supper was replacing. It was hoped to hold another small social function during the winter months, and lectures had already been arranged until the end of May 1940. Mrs. Lawley then presented the retiring chairman with a replica of the badge of office. Mr. H. C. Shaw (a member of the Society's Council) also spoke, and Mrs. Shaw thanked the committee for its presents to the ladies. The remainder of the evening was given over to a concert entertainment.

MEETING AND WHIST DRIVE.—The first meeting of the Newcastle District and Northumberland Branch of the Pharmaceutical Society since war began was held jointly with the local Branches of the National Pharmaceutical Union and Photographic Dealers' Association at Newcastle-on-Tyne on January 17, when members received a visit from Mr. H. M. Hirst (a member of the Society's Council). Mr. Hirst gave an account of work done by the Council both before and after the outbreak of war to ensure that services vital to pharmacy should not suffer. Evacuation of the staff and equipment had, he said, entailed heavy expenditure, and it was expected that there would also be a considerable loss of revenue, so that substantial economies would have to be made. Mr. Hirst appealed to members not to lessen their contributions to the Benevolent Fund, as an even heavier demand on this charity would assuredly be one outcome of the war. The speaker was thanked by Mr. R. H. Dennison. Tea was then served, to which ladies and friends had been invited. A military whist drive followed, for which the prizes were presented by Mrs. Atkins (wife of the Branch president).

Miscellaneous

WINDOW SMASH.—The front of the pharmacy of Mr. J. Pommert, M.P.S., Bolton Road, Blackburn, was damaged on January 17, when a car skidded.

RESTRICTIONS ON LIGHTING.—The Minister of Home Security has issued as S.R. & O. 1940, No. 74, the Lighting Restrictions Order dated January 19. This is a comprehensive order embodying the original Order and the amendments and relaxations which have subsequently been made and permitted. Part IV deals with the lighting of shops. Copies may be obtained from H.M. Stationery Office, price 6d.

LONDON EXAMINATION RESULTS.—In the Pharmaceutical Chemist Qualifying examination held in London in January fourteen passed, two failed, three were referred, and one was absent. The following candidates satisfied the examiners: Allen, D. P.; Applewhite, Kathleen; Baulk, Grace T.; Elliott, T. H.; Evans, F. E.; Fitch, Enid M.; Gisborne, K.; Guthrie, G. A.; Malkin, R.; Rawlins, E. A.; Siller, F. K.; Todd, D. A.; West, G. B.; Westlake, H. G.

GIFT OF BOOKS.—At a luncheon of the Coventry Branch of the Pharmaceutical Society held on January 18 in the refectory at the Technical College, a number of books on pharmacy and the allied sciences, purchased from a fund subscribed by local pharmacists, was presented by Colonel Sir William Wyley to the Education Committee. Mr. G. Pinchbeck, Ph.C. (chairman of the Pharmacy Advisory Committee) presided and the chief guests included Councillor J. Holt (mayor); The Rev. R. Lee (chairman of the Education Committee); Mr. F. Harrod (director of Education); Mr. J. Wilson (principal of the College). The books will form a nucleus for a pharmaceutical section in the library and be available for reference purposes to practising pharmacists and their assistants in Coventry and its environs.

DANGEROUS DRUGS PROSECUTIONS.—At Bristol Police Court, recently, a Chinese seaman was fined £5 for unlawfully bringing opium into Avonmouth.—At Marlborough Street Police Court, London, recently, two seamen, Thomas Dual and Edward Johns, were fined £20 and £10 respectively for being in possession of Indian hemp.—At Westminster Police Court, London, on January 11, Dr. G. C. McDiarmid, Dedham, Essex, was summoned for failing to keep a register in accordance with the D.D. Regulations. There were further summonses for failing to enter in a register supplies of heroin, morphine and dilaudide. The case was adjourned for six weeks.—At Marylebone Police Court, London, on January 18, Dr. Riccardo Vicchi was fined £20 on four summonses for failing to make entries in his register of purchases of morphine sulphate.

Irish Notes

Irish Drug Association

At the Committee meeting of the Irish Drug Association held on January 15, Mr. P. A. Brady (president) in the chair, representatives from the wholesale section of the I.D.A. discussed prices for packed lines with the Committee, and a reduced series of wholesale prices for packed liquid paraffin were agreed upon. The effects of increased costs of bottles, containers, cartons, etc., were discussed, and the wholesale representatives suggested that packed prices would most likely have to be increased at an early date to meet these extra charges. A report from the Mayo Pharmaceutical Association, which included resolutions for the consideration of the Committee, was discussed. The Committee noted with pleasure that arrangements had been made for a Mayo representative to attend the annual meeting on January 29. Mr. Lester stated that Cork would also have a representative present. All local associations were urged to make similar arrangements immediately. Notices of motion for the annual general meeting were considered. One motion referred to a matter which has been under consideration by the Committee for many years, namely the inadequate profit on some patents. Many firms are now allowing 33½ per cent. profit only as a result of continued pressure from the Association. Another resolution requests the reviewing of developing and printing charges by the Association. Members who have not paid their annual subscription (£2 2s. from January 1 to December 31, 1940) are reminded that this is now due, and that no price list will be sent to any member who has not paid. The attention of members was drawn to the increasing retail prices of proprietary medicines, particularly of the ethical type which either compose a prescription, or are a component of same. If prescriptions of this type which were priced say twelve or eighteen months ago are repeated,

the charge and the code should be altered accordingly, and the previous compounder, or the Secretary, informed of the charge. The final arrangements for improved third party insurance have not yet been settled. Any member whose premium is now due should communicate with Mr. Brendan Smith, organiser. A report of the deputation consisting of Messrs. P. F. McGrath, A. J. Donnell, B. Smith, and R. A. Kidney, who interviewed officials of the Department of Industry and Commerce on January 9 regarding the operation of the Shops (Hours of Trading) Act was considered. For some time past the Association has been in communication with the Department endeavouring to obtain an official ruling on certain lines generally stocked by members, and which are now held by some Inspectors under the Act to be non-exempted goods. At the interview it was promised that the Minister would consider the Association's representations, and that a guidance on what are considered "border line" items would be given at an early date. Meanwhile members in Dublin area are advised to refrain from discussing the repercussions of this Act with the police authorities. If in doubt on any point members should communicate with the secretary, or refer to the explanatory circulars which were issued since the Act was introduced, particularly the circular dated October 9, 1937.

Miscellaneous

BUSINESS CHANGE.—Mr. W. T. Hinchy, M.P.S.I., has transferred his business from 31 Washington Street to 7 Parliament Street, Cork.

MR. DONALD ENRIGHT.—Mr. Donald Enright, M.P.S.I., Medical Hall, Millstreet, Co. Cork, was knocked down by a motor car and sustained a fracture of the leg and other injuries. He has been detained in the South Infirmary, Cork.

EXAMINATION RESULTS.—The following passed in the January Licence examination of the Pharmaceutical Society of Ireland: Vincent McElwee (with honours), Aloysius Edward Digan, Thomas Joseph Harty, Michael Hayes, Patrick Hunt,

George Klein, Thomas R. Lester, Kathleen Lyster, James Philbin O'Neill, Christina O'Reilly, Andrew Vincent Tully, Daniel Dominick Sweeney.

ST. JOSEPH'S SOCIETY.—A public meeting to launch the pharmacists' branch of the St. Joseph's Young Priests' Society will be held at the A.O.H. Hall, 31 Parnell Square, Dublin, at 3 p.m. on January 28. The meeting will be presided over by Mr. F. X. Meagher, M.P.S.I. (chairman of the newly-formed branch) and representatives of the retail, wholesale, and manufacturing sections of the drug trade in Dublin and district will be present. The speakers will include Rev. M. Kirwan, S.J.; Very Rev. Eugene O'Doherty, O.M.I., Belmont College; Rev. Fr. Casey, Very Rev. M. P. Cleary, O.P., and Mr. Ronayne.

ULSTER PHARMACY DANCE.—The Ulster pharmacy dance, held in the Plaza, Belfast, on January 17, attracted about 500. Mr. Tate (president, Pharmaceutical Society of Northern Ireland), Mr. McDowell (president, Ulster Chemists' Association), and Mr. and Mrs. Fred Storey all brought parties. There were also a number of visitors from Eire and Scotland. Mrs. McGregor's party included Mr. and Mrs. Bowers, Mr. and Mrs. Allen, Mr. and Miss Andrews, and Miss McKelvey. The arrangements were in charge of the ladies' pharmacy social committee, which included: Mrs. McGregor (chairman), Miss Forrest (secretary), Miss Crawford (treasurer), the Mesdames F. Storey, W. Martin, C. Abernethy, N. Hogg, Kyle, J. McDowell, and Maguire, the Misses Lavery, Barry, Murray, E. Fox. Mr. Fred Storey (chairman of the Benevolent Fund committee) acted as Master of Ceremonies. The stewards were Messrs. J. McGregor (treasurer, Benevolent Fund), W. Tate, John McDowell, J. B. Guiler, Trevor Nicholl, J. Kirkpatrick, and A. Steede. Prizes for novelty dances were kindly given by Mrs. McGregor, Mrs. Martin, Miss Murray, Messrs. Fred Storey, Tate, John McDowell, Gaw, and Groves. The proceeds of the dance were in aid of war comforts and the chemists' Benevolent Fund.

Topical Reflections

By Xrayser

Epidemics and Trade

The visitation of influenza referred to in your Retrospect (p. 43) is not likely to be forgotten by those who experienced it, for the typical symptoms included emesis and severe prostration. Such epidemics are not an unmixed blessing to pharmacists in business: the additional custom they bring is usually accompanied by shortage of staff—proprietors and assistants being among the victims—with the worry attaching to that undesired circumstance. At those times there is not much question of pushing trade; the trade is pushed for one by the customers. Your Retrospect aptly points out "how ready the public is to dose itself" on such occasions and "the enjoyment the public takes in its physic." In a characteristic essay entitled "On the Eloquence of the Dumb Dog," the late John Oliver Hobbes (Mrs. Craigie) narrated a visit to a hospital where one of these dumb dogs was an in-patient. She asked whether there was anything he wanted; and his wife replied for him: "They won't give him any medicine. And he's such a one for taking medicine. The worse it is, the better he swallows it. . . ." Thus, knowing that the average customer expects medicine in times of epidemics, it remains for us to advise, with sympathy and discrimination, on the best medicine to be taken.

Eye Lotions

Your article on eye lotions (p. 48) usefully emphasises the principal points to be taken into account when preparing and selling an eye lotion. Sterility, reaction and tonicity are factors that cannot be too clearly kept in mind in this connexion. It may be hoped and believed that, as far as pharmacy is concerned, the use of distilled water of uncertain age, or even of tap water, is finally abolished. I have sometimes wondered to what extent tonicity governs the average strength of eye lotions favoured by prescribers. It will be noticed that of three successive formulas containing zinc sulphate in the first column of your article two have $\frac{1}{2}$ gr. to the ounce and one has approximately $2\frac{1}{2}$ gr. to the ounce. I remember being told by an old prescriber years ago that zinc sulphate eye lotions should contain 3 gr. to the ounce if they were to be successful: this idea is borne out by the fifth edition (1861) of Beasley's "Druggist's Receipt Book," which has a collyrium containing from 30 gr. to 60 gr. each of

zinc sulphate and acetate in a pint of water. I notice that "Diseases and Remedies" recommends (p. 105) a strength of 2 gr. to the ounce, while the hospital collyria in "Pharmaceutical Formulas" have a range from $\frac{1}{2}$ gr. to 1 gr. in each ounce.

Examination Results

War-time conditions do not lessen the need for studying the figures instanced in your editorial remarks on the examination of the Pharmaceutical Society. This is a trouble of long standing in its wider aspect. For a rough comparison I have taken from a shelf my volumes of THE CHEMIST AND DRUGGIST for the year 1901 (though I am aware that the Chemist and Druggist Qualifying examination has undergone considerable modification since). I see that in two sets of examinations chosen at random, London percentages of passes were 30.8 and 29.0, while the corresponding Edinburgh percentages were 39.5 and 49.2. The London percentages for the present month exceed the average of the 1901 percentages for London but do not reach that of the 1901 Edinburgh percentages. On the reckoning, therefore, we have not much cause for complacency. An elaborate statistical analysis would be required in order to arrive at a more exact computation of the difference between past and present results, but I am not sure that the outcome would be very different from the present comparison. There must be educationists with the requisite leisure who can get to work on this problem if their interest is enlisted.

The C. & D. Diary

To have produced, in present circumstances, a C. & D. Diary true to type is an achievement on which I heartily congratulate you. The literary pages of this indispensable companion are of the usual practical kind, strong on the legal side and fully recognising the everyday demands of shop maintenance. Most of us give more attention—and rightly—to the appearance of our pharmacies than we or our predecessors did a generation ago; in this matter your hints will be duly studied. The advertisements have, as ever, the attractiveness of good printing and layout. They form a guide to buying that will sometimes save us from troubling your Information Department when we need an out-of-the-way medicament or appliance. And the cheerful cover—no fading there!—commends the volume wherever it goes.

Company News

P.C. means Private Company and R.O. Registered Office

B.B. TECHNICAL (RAW MATERIALS), LTD. (P.C.)—Capital £1,000. Objects: To carry on the business of general merchants in chemicals and chemical substances, minerals, fluorescent and luminescent materials, etc. R.O.: 7 Princes Street, London, E.C.2.

CHEMIA PRODUCTS, LTD. (P.C.)—Capital £1,000. Objects: To carry on the business of manufacturers of and dealers in chemical compounds and preparations, oils, acids, soaps, alkalis, etc. Philip Fisher, 21 Chiswell Street, London, E.C.1, R.O., director.

DIXON & CO. (LIVERPOOL), LTD. (P.C.)—Capital £1,000. Objects: To carry on the business of manufacturers of and dealers in soaps, tallow, glycerins, disinfectants and polishes, etc. The first directors are not named. R.O.: 39 Eaton Street, Liverpool, 3.

PERIHEL EXPORT, LTD. (P.C.)—Capital £100. Objects: To carry on the business of manufacturers and dealers in electrical medical apparatus and appliances, etc. Solomon Schaffer, 27 Manor Way, Chesham, Bucks, director. R.O.: 10 Cullum Street, E.C.3.

RHU-GO CHEMICAL CO., LTD. (P.C.)—Capital £100. Objects: To carry on the business of manufacturers and sellers of patent medicines and ointments for the relief and cure of rheumatism and other ailments, etc. Henry F. W. Jordan, 131 Poole Road, Bournemouth, director.

ROBERT HALDANE & CO., LTD. (P.C.)—Registered in Edinburgh. Capital £1,000. Objects: To carry on the business of manufacturing chemists, wholesale and retail druggists, etc. Robert H. B. Haldane, Walden, Kilcreggan, director. R.O.: 145 St. Vincent Street, Glasgow.

CHIVERS WELSH VINEGARS, LTD. (P.C.)—Capital £20,450. Objects: To carry on the business of manufacturers of and dealers in vinegar, acetic acid, glucose, yeast, etc. The first directors are to be appointed. Solicitors: Linklaters & Paines, 2 Bond Court, Walbrook, London, E.C.4.

MUIR & PULLAR, LTD. (P.C.)—Registered in Edinburgh. Capital £1,000. Objects: To acquire the business of Muir & Pullar, Caer Chemical Works, Bridge of Allan. John Muir, jun., Ardennan, John L. Pullar, Ault Wharry, John Muir, Ash Cottage, Ashfield, Dunblane, directors.

KAYE & JUNIPER, LTD. (P.C.)—Capital £100. Objects: To carry on the business of manufacturers of and dealers in chemicals, carry out chemical processes and research work. The first directors are not named. Secretary: George M. Duncan, Aldwych House, Aldwych, London, W.C.2.

BEAJAN, LTD. (P.C.)—Capital £100. Objects: To carry on the business of manufacturers and vendors of chemical and surgical goods, perfumes, medicinal and toilet preparations, etc. The first directors are to be appointed. Solicitors: Simmons & Simmons, 1 Threadneedle Street, London, E.C.2.

NEW COMPANIES REGISTERED IN 1939.—Jordan & Sons, Ltd., company registration agents, Chancery Lane, London, W.C.2, in their annual statistical report for 1939, state that in the group "Chemicals" two "public" companies were registered with a total capital of £2,000, and 440 "private" companies with a total capital of £1,676,050.

Bankruptcy Report

Re Thomas Albert Taylor, late of 8 Central Circus, Hendon, London, N.W., chemist. The first meeting of creditors was held on January 8. The receiving order was made on the petition of Sangers, Ltd., and the defendant has been adjudged bankrupt. He stated that he qualified in 1925 and subsequently acted as manager for various firms until August 1929, when, at a cost of £150, he acquired a lease of 8 Central Circus, Hendon, and spent a further £150 in fitting up the shop. The trading was successful and in March 1931 he took a lease of a shop at 266 Watford Way, Hendon. A new shop front was installed at a cost of £500 and the business was opened under management. That branch was sold in September 1937 for £835. In September last debtor arranged to sell the business at Central Circus, but the negotiations fell through and the receiving order followed. When war was declared the people of Hendon evacuated their homes in large numbers and a hospital, which was his best customer, was also evacuated. There was also loss on the Watford Way branch. A resolution was passed for Mr. A. Granville White, C.A., to act as trustee and administer the estate in bankruptcy with the assistance of a committee of inspectors.

Photographic Opportunities

At a recent meeting of photographic manufacturers one speaker expressed the opinion that: "There is a real necessity in these days to encourage with all the power we can muster, by every means we can employ, and at every opportunity, the starting and practising of hobbies either individually or collectively. It has been proved conclusively that the boy who becomes keen on a hobby makes the brightest employee in the office or workshop, and what better hobby is there than photography seeing that it combines art and science?" These remarks were approved by everyone present. It would be difficult to estimate how many cameras were sold for presentation as Christmas or New Year gifts; the number would appear to be large, for reports from many districts indicate that cameras have again been popular as presents and it must therefore be concluded that there has been made a further large addition to the number of people interested in the hobby of photography. Doubtless many received their first camera, others who have acquired a better type have perhaps passed their old one to someone else. "Family interest" is particularly valuable from the retailer's point of view and should therefore be given more consideration than some photographic chemists are giving it. For instance, the "black-out" has been responsible for quite a lot of home photography being done and many families have found great enjoyment in watching some gaslight prints or a spool of film being developed. It has been a real remedy for "black-out blues." Many amateurs have devoted more time to their hobby this winter simply because there has not been the problem of fixing up a dark room.

Considerable attention is being given to amateur photography by education committees, heads of schools and colleges, training centres for young people and the institutions for helping

the young unemployed; many of these have regular classes where practical demonstrations and lectures are given to men and boys and also girls. Organisations like the scouts and guides are interesting their members in photography to no small degree. The general public are also becoming more and more photominded; this is of course due to the Press, for one cannot take up a newspaper or magazine without attention being drawn to the photographic illustrations. All these activities affect the photographic chemist who should make it his business to sell the hobby of photography.

Some special efforts are likely to be made by the manufacturers this season in the way of encouraging home photography, i.e., urging people to do their own developing and printing, to make enlargements, lantern slides and to learn the many interesting processes connected with the hobby and so convert them into all-the-year-round photographers. It is these people who use the most material and bring continuous trade to the dealer. With all this interest in photography it is quite possible for a considerable change to take place in amateur photographic practice if the manufacturers can be assured of the whole-hearted support of the retailer. At the present time there is a lot of indoor work being done and for this bromide and gaslight papers, enlargers, dishes, frames, lamps, chemicals, mounts and sundry oddments are required. It is these lines which should be shown in the shop window or on the counter. January and February are good months for doing a little useful local advertising, folks spend more time at home and therefore have more opportunities for reading the local paper; it is also a good time for some "ground baiting" such as circularising in the immediate neighbourhood.

Pharmaceutical Society of Northern Ireland

Council Meeting

THE monthly meeting of the Council of the Pharmaceutical Society of Northern Ireland was held at 73 University Street, Belfast, on January 19, the president (Mr. Walter C. Tate) in the chair. There were also present Mr. James Glendinning (vice-president), Mr. H. F. Moore (treasurer), Professor E. B. C. Mayrs, M.D., Dr. S. E. A. Acheson, and Messrs. John McGregor, J. Trevor Nicholl, J. W. Gray, J.P., J. F. Grimes, J.P., James McDowell, and James Donaghy. The secretary (Mr. D. L. Kirkpatrick) was in attendance.

Prior to the business THE PRESIDENT alluded to the bereavements suffered by two members of the Council since the last meeting—Mr. C. Abernethy had lost a sister, and Mr. I. W. Parker a sister-in-law. At his suggestion the Council stood for a moment in silence as a mark of sympathy.

THE SECRETARY reported that cards of greeting had been received from the Pharmaceutical Society of Great Britain, the Pharmaceutical Society of Ireland, the Pharmacy Board of Tasmania, the Pharmacy Society of South Australia, the Ontario College of Pharmacy, Canada, and the editor of the "Pharmaceutical Journal."

The report of the Finance Committee was adopted on the motion of MR. McGREGOR, seconded by MR. DONAGHY.

On the motion of MR. GRAY, seconded by MR. NICHOLL, the following were elected members of the Society:—James Alexander Marshall, Hazelford, Carnmoney, co. Antrim; Alexander McCartney, Donaghadee Road, Newtownards, and Victor Douglas Skeels, 14 Godfrey Avenue, Bangor.

On the motion of MR. McGREGOR, seconded by MR. GRAY, it was decided to revert to the old time for the Council's monthly meeting—3 p.m.

ANNUAL DINNER

There was a discussion on a suggestion by MR. McGREGOR that the annual dinner should not be dropped this year. In his opinion if the dinner was allowed to lapse it would never be revived. Last year it had proved a most enjoyable function, and in spite of the difficulties caused by the war he believed the trade would support it just as enthusiastically this year. It was decided that MR. McGregor should raise the matter at the next meeting of the Ulster Chemists' Association to ascertain if their co-operation would again be forthcoming, and if the response was favourable the two dinner committees could proceed with the arrangements.

EDUCATIONAL MATTERS

THE SECRETARY presented the examiners' reports:—

Pharmacy (Examiner, Mr. T. Harper, M.P.S.): In the section now known as "Forensic Pharmacy" the answers given to the questions set reached a fair average, and in a few cases good marks were awarded. The answers to the "Written Pharmacy" questions on the whole showed a good knowledge of the subject, and in a few cases also high marks were obtained. The most obvious flaw in the written papers in both sections is prolixity. The work handed in in "Practical Pharmacy" showed a decided advance on that of the earlier examinations. Neatness, cleanliness and dexterity, and also correct labelling of the finished products showed that candidates were reaching a much higher level. In two cases the marks awarded in this section were outstanding.

Pharmacognosy (Examiner, Mr. D. O. Pinkerton, B.Sc., M.P.S.): The large majority of the candidates who presented themselves for examination in Pharmacognosy showed a good knowledge of the subject. Some of them obtained an excellent standard, and very few submitted papers of a poor quality. The outstanding weakness was the inability of candidates to illustrate their work with presentable drawings. The practical work was of a decidedly better standard than the theoretical, but there was a tendency to "spot" the specimens rather than identify them by systematic examination.

Chemistry, Part II (Examiner, Dr. J. E. Driver): The general standard was satisfactory. As usual the purely organic work (Part I of the paper) was well done. In Part II of the paper some weakness was shown in the questions dealing with inorganic preparations, and with the chemistry of fats. The theoretical questions on methods of analysis were badly done. The practical work was good. The quantitative exercise was accurately done. The results for the organic preparation were satisfactory on the whole, and some of the specimens submitted were excellent.

Chemistry, Part I (Examiner, Dr. J. E. Driver): Partly, no doubt, as a result of the unsettling effect of war conditions the general standard was rather poor. In the theoretical paper fundamental chemical concepts (such as the distinction between chemical compounds and mixtures, and the relationship between vapour density and molecular weight) were often not understood. The laboratory preparation of

oxygen was not well described. Other points of weakness were found in the questions dealing with the formula of sulphur dioxide, the reduction of various compounds, and the properties of electrolytes and non-electrolytes. It may be pointed out that in many of the scripts composition and spelling were far from satisfactory. In the practical work the quantitative and qualitative analysis was reasonably well done. The preparation of potassium nitrate caused more difficulty, and many candidates appeared to be unpractised in the process of crystallisation.

Physics (Examiner, Professor W. B. Morton): The answering on the theory papers was very poor. I do not think the questions were too difficult, but they hit upon the weak places in the candidates' knowledge. It is discouraging to find people who know how to measure "g," but do not know what "g" means, who can measure with the Wheatstone bridge but cannot prove its simple formula, who assert that the principle of Archimedes has nothing to do with the rising of warm water through cold, and appear to regard the truth of the principle as merely a happy accident. A knowledge of physics which consists in memorising formulas and statements of laws is of little use to anybody. Something better than this should be possible, even under the difficult conditions with which our candidates have to contend.

Botany (Examiner, Professor J. McL. Thompson): The main feature of this examination was that the candidates showed a marked falling-off in attainment. In particular it was more than evident that in the majority of cases the candidates had not had their minds on their preparation as in the two previous examinations. Their written answers were mainly vague and more than inexact, so that it was not mere chance that some of the candidates demonstrated a real ignorance of the main principles which they had studied. The written examination set for December was specially prepared so as to cover principles as laid down in the syllabus, and to avoid details of less importance. It was thought that in this way a definite allowance was being made to all candidates in these unsettled times. The object in view was to be content with a somewhat lowered standard. The fact that many of the candidates did not reach this lowered standard is probably due to a natural inability to concentrate on study in the present state of war. It is to be hoped that the candidates who failed in December will have an opportunity to consolidate their work before they re-present themselves. In the main the candidates who did well—and there were a few who did really well—were new candidates. I hope that it is right to maintain in so far as is possible the rising standard which has been shown in this examination, and of which the Society can justly be proud.

THE PRESIDENT, commenting on the reports, said they showed that there must be an unsettling influence nowadays which could only be attributed to present-day conditions.

At the end of the Council meeting a number of new licentiates were presented with their certificates by THE PRESIDENT, who in the course of his address said: Although you are now qualified to practice as pharmaceutical chemists I would impress upon you that your education is by no means complete. From now on in your daily tasks and duties you will, by your experiences, be laying up a store of fresh knowledge and information which will prove of much benefit and which will stand to you in the days to come. You will come to realise that there is a multitude of truth in the words "experiencia docet," and that by attending wisely to that old but ever true maxim you will be fitting yourselves and strengthening your resources daily for all the eventualities you may encounter. Now that you have the magic letters added to your names do not throw your textbooks away. Refer to them as often as you have time; read all the literature you can lay your hands on regarding advances in chemical and pharmaceutical preparations; be loyal members of your own Society; take an intelligent interest in the activities of your trade Associations. You cannot have a better motto than "I serve," and as long as you serve honestly and fairly you are fulfilling the best functions of a pharmacist. You cannot make a craft ethical by passing regulations, as effects and results are solely dependent on individual interpretation of what is ethical and what is not. Ours is a complex business. All in one we have to be buyers, sellers, stock-keepers, diplomats and confidential advisers, and we must never, whatever we are doing, forget it is incumbent upon us to conduct our business on high ethical lines consistent with the honourable traditions of pharmacy.

THE VICE-PRESIDENT also congratulated the licentiates and expressed the hope that they would attain prosperity in their careers. It was a great consolation to know that the students that were being turned out today were receiving the training necessary for all that behind-the-counter work, and that when the occasion arose they were fully equipped to meet any demand made upon them. (Hear, hear).

MR. DONAGHY also congratulated the licentiates.

Trade Notes

MEDICINAL COD LIVER OIL is advertised in this issue by A/S Johan C. Martens & Co., Bergen, Norway.

NAILOID.—Allcock Manufacturing Co., Argyle Street, Birkenhead, have sent us a specimen of the new pack of Nailoid and it is shown in the accompanying illustration mounted on a small showcard.



A NEW YEAR MESSAGE from Mr. J. M. Bush, chairman of W. J. Bush & Co., Ltd., Ash Grove, Hackney, London, E.8, appears on another page of this issue.

BONUS OFFER.—Glaxo Laboratories, Ltd., Greenford, are making a bonus offer in connexion with Farex. Details of the various parcels available are given in the company's advertisement.

ELNAHAR ANTIPHONES are a British-made product which can be used in place of another brand no longer available. Full details regarding the new product can be obtained from Elnahar, Ltd., 7 Great Marlborough Street, London, W.1.

S. MAW, SON & SONS, LTD., Aldersgate House, New Barnet, Herts, announce that their telephone switchboard and telephone order department will be working from 8 a.m. to 5.30 p.m. Mondays to Fridays and 8 a.m. to 12.30 p.m. on Saturdays although normal working hours are 8 a.m. to 5 p.m. and 8 a.m. to 12 noon respectively during black-out period.

NATIONAL SAVINGS.—Elsewhere in this issue will be found some details regarding the way to save money through a national savings group. As is well known, many of these groups have been formed in factories and workshops throughout the country, and employers, whether wholesale or retail, who have not such a group already functioning, can obtain assistance in the inauguration of such a scheme by sending in the coupon appearing on another page.

CATALOGUE OF SCIENTIFIC APPARATUS.

—Vol. I, 9th edition, of the catalogue of scientific apparatus and instruments for educational purposes recently issued by A. Gallenkamp & Co., Ltd., 17 Sun Street, Finsbury Square, London, E.C.2, has recently appeared. The catalogue is fully illustrated and contains 559 pages. It is bound in stiff cover and contains sections on chemistry, botany, physics, mechanics, hydrostatics, etc.

INDUSTRIAL THERMOMETERS.—The Nottingham Thermometer Co., Ltd., 63 Mansfield Road, Nottingham, advertise in this issue thermometers suitable for use by manufacturers in the drug trade. The firm has supplied thermometers for over 130 different trades. Among types of instrument produced are flue-gas, steam-plant, superheater, dial vapour-pressure and standard-stem graduated glass thermometers. Leaflets pertaining to each type are obtainable on request.

CALENDARS.—We have received calendars from the following: STAFFORD, ALLEN & SONS, LTD., Wharf Road, London, N.1 (monthly tear-off, size 16 in. by 11½ in., on buff card printed in brown and black with coloured floral illustration). C. OLLEY & SONS, LTD., Camperdown Street, London, E.1 (monthly tear-off, size 16½ in. by 11 in., on black card with design in silver and colours). THOMAS WAIDE & SONS, LTD., Kirkstall Leeds, 5. (Weekly tear-off pad of ruled pages, size 9 in. by 5½ in.)

VINOLIA ADVERTISING.—Vinolia Co., Ltd., Bebington, Cheshire, state that two striking advertising campaigns will be launched by them this year. One will deal with Lypsyl and will appeal to women who suffer from "winter lips"; the other will be concerned with Vinolia baby products. Retailers who wish to link up with this publicity can obtain display material on request. The latest product to be introduced by the company is the Vinolia economy shaving cake which has been devised to meet the needs of men on active service and in the industrial areas for an inexpensive cake of good quality. A specimen will be sent to any chemist who is interested.

NIPA PRODUCTS.—It is announced that all Nipa products are now being manufactured in this country by Nipa Laboratories, Ltd., Factory V.12, Treforest Trading Estate, Cardiff, who hold English and foreign patent rights. In addition to having a modern factory the company possesses fully equipped chemical and bacteriological laboratories, and are prepared to examine, free of charge, customers' materials with a view to recommending a suitable preservative. An appreciable reduction in prices of these products has been possible. Literature, samples and prices may be obtained from the sole selling agents, P. Samuelson & Co., 17 Creechurh Lane, London, E.C.3.

A NEW HOUSE ORGAN.—Under the title of "The B.D.H. News" The British Drug Houses, Ltd., Graham Street, City Road, London, N.1, have recently issued the first number of a magazine devoted to the activities of their staff. This number, comprising twenty pages, has a foreword by Mr. C. A. Hill, the managing director, and a wide variety of articles. The difficulty of producing a new publication at the present time makes the inauguration of the "B.D.H. News" a triumph over many difficulties and the staff are to be complimented on a well-balanced journal, the material for which has, we understand, been obtained from "inside" sources.

NEW RENDELL PRODUCTS.—W. J. Rendell, Ltd., Hardwick House, 161/165 Rosebery Avenue, London, E.C.1, announce a



departure of considerable interest to chemists, namely the introduction of three new products, Santron, Silatex and Mensinole, and illustrations of the way in which these are packed are shown above. Santron is a germicidal solution, Silatex is a sanitary towel and Mensinole a tablet for the relief of headaches, neuralgia and similar conditions.

CLOSURES FOR CONTAINERS.—The Viscose Development Co., Ltd., Bromley, Kent, are the manufacturers of all kinds of seals for containers which greatly increase the attractiveness of any container on which they are used. Viscose seals are the original self-shrinking ones and can be supplied wet or dry in almost any shade. Viskrings are a similar type of seal for use as an alternative to the full cap. A container sent to the above address will be sealed with the appropriate closure and returned free of charge.

Personalities

MRS. E. HODGSON TODD, wife of MR. EDWIN HODGSON TODD, M.P.S., Newcastle Street, Burslem, and St. Edmund's Avenue, Porthill, has had the double honour of being appointed a magistrate for the City of Stoke-on-Trent and a life governor of the Burslem, Haywood and Tunstall War Memorial Hospital. Mrs. Todd is president of the House Committee and a member of the Finance and Nursing Committees of the hospital. She is also honorary secretary (and founder) of the Linen Guild. Mrs. Todd is also a governor of the North Staffs Cripples' Orthopaedic Hospital, a member of the House Committee, and honorary secretary of the Burslem Committee.

Deaths

BENNETT.—At 206 Morrison Street, Edinburgh, on January 14, Mr. Allan Bruce Bennett, M.P.S. Mr. Bennett passed the Qualifying examination in 1927.

EDGE.—At his residence, "Marshcroft," Wolstanton, Staffs, on January 9, Mr. William Drakeford Edge, M.P.S., aged sixty-five. Mr. Edge qualified in 1896 from the Northern College of Pharmacy. He was a native of Newcastle-under-Lyme, and served his apprenticeship in Tunstall. He was in business in Wolstanton for over forty years. Mr. Edge was a member of the Pharmaceutical Committee of the Staffordshire Insurance Committee. He was also president and treasurer of the local division of St. John Ambulance Brigade.

FISHER.—At Melton Constable, Norfolk, on January 13, Mr. George William Fisher, M.P.S., aged seventy-three. Mr. Fisher at one time carried on business at Mundesley, Norfolk, but had been in business at Melton Constable for many years. He had been Grand Master of the Briston Lodge of Oddfellows and Chief Ruler of the Rechabite Order at Melton Constable.

HARLEY.—At Winchester, recently, Mr. George A. Harley, only surviving son of the late Mr. Thomas Harley, chemist and druggist, Perth. Mr. Harley was returning to his home at Horsham, Surrey, when he was involved in an accident.

ISLIP.—On January 18, Mr. Charles Cater Islip, M.P.S., 18 Shepcote Road, Harrow, aged seventy-five. Mr. Islip was born in Shelton, Bedfordshire, educated at Trent College, and apprenticed to Mr. Joseph, St. Leonards-on-Sea. After qualifying in 1887 he was an assistant at Garners, Kensington, and later at Jolleys, Curzon Street, London, W. He then left pharmacy for two or three years to manage his father's farm. In 1897 he became London representative of Warrick Brothers, Ltd., Nile Street, in which capacity he came into contact with and knew personally not only London chemists but also a great number of those who gained their experience in the Metropolis and are now in business in different parts of the country. Mr. Islip was a member of the Western Pharmacists' Association and also an active member of the Harrow and District branch of the Pharmaceutical Society. He leaves two sons and a daughter—Miss Mary C. Islip, M.P.S. The funeral took place at Harrow cemetery on January 20. Among the mourners were Miss Mozley-Stark (secretary of the National Association of Women Pharmacists) and Mr. J. F. McNeal (member of the Council of the Pharmaceutical Society and secretary of the Harrow and District Branch of the Pharmaceutical Society).

MCINTOSH.—At Kingston-on-Thames County Hospital on January 16, Mr. Hugh William McIntosh, M.P.S. Mr. McIntosh passed the Qualifying examination in 1927.

MOUNTAIN.—Recently, Mr. John Thomas Mountain, M.P.S. Sheep Street, Bicester, aged seventy-one. Mr. Mountain passed the Minor and the Major examinations in 1890 and then commenced business at Caversham, Reading. He was afterwards in business in Bicester for over forty years. Mr. Mountain was well known in the rifle shooting world, having competed at Bisley for the King's prize and also shooting for Great Britain both with the service and miniature rifles. He was a member of the Bicester Urban District Council from 1911 to 1921, and served as chairman in 1918.

NELSON.—At Rathfriland, co. Down, on January 18, Mr. Thomas Nelson, M.P.S.N.I. Mr. Nelson was a P.M. of Lodge 80, P.K. of Chapter 80, P.E.C. of Iveagh Council, and P.P. of Iveagh Preceptory, and was also a member of Newry District Charities Committee. This year he was elected a member

of the Grand Royal Arch Chapter of Down. Mr. Nelson was also organist of Second Presbyterian Church, Rathfriland, where he also served on the Committee. A keen billiards player, he was one of the original members of Rathfriland Billiards Club, and the holder of many trophies.

NIXON.—At his home at Hemel Hempstead, suddenly, on January 15, Mr. Cecil Nixon, aged sixty-one. Mr. Nixon was a director and factory manager of Solport Brothers, Ltd., druggists' sundriesmen, Goswell Road, London, E.C.1, since the incorporation of the company in 1915, and was associated for many years before that date with Mr. Albert Nixon, his brother, the managing director of the company.

PALMER.—The funeral of Mr. Charles James Palmer, M.P.S., whose death was announced in last week's *C. & D.* (p. 45), took place on January 17 at Twickenham Cemetery, following a service held at St. James's Church, Hampton Hill. Among those who attended were Mr. A. L. Higgs, representing Thames Valley Pharmacists' Association, Mr. W. S. Howells (member of the Pharmaceutical Council), Dr. A. G. Thompson, Dr. J. H. Dupont and Mr. R. G. Wright (Evans Sons Lescher & Webb, Ltd.).

SQUIRES.—On January 18, Mr. Seth Steggall Squires, Ph.C. Mr. Squires passed the Minor and the Major examinations of the Pharmaceutical Society in 1903 and was for many years a branch manager for Wands, Ltd., Leicester. About a year ago he commenced business on his own account in London Road, Leicester, but became ill shortly afterwards and since has not enjoyed the best of health. Mr. Squires was chairman of the Advisory Committee of the Pharmacy Department of Leicester Technical College and so a prominent Freemason. He leaves a widow, two sons and one daughter.

THURSFIELD.—At his residence, Norton House, Kettering, on January 14, Mr. John Henry Thursfield, M.P.S., aged seventy-one. Mr. Thursfield, prior to his retirement several years ago, had pharmacies in Rockingham Road and Dalkeith Place. Since retiring, he has devoted himself to various organisations connected with the Society of Friends and the Adult School movement.

WALKER.—At Birkenshaw, Yorkshire, on January 15, Mr. George Walker, M.P.S., aged eighty-seven. After qualifying in 1876, Mr. Walker commenced business on his own account at Market Place, Dewsbury, and remained there for thirty-three years, afterwards moving to Birkenshaw.

WRIGHT.—At 21 Abbey Drive, Jordanhill, Glasgow, on January 16, Mr. James Geddes Wright, M.P.S., Dumbarton Road, Partick West. Mr. Wright passed the Minor examination in 1897.

Trade-Mark Applications

(From "The Trade Marks Journal," January 3, 1940)

APPLICATIONS FOR TEMPORARY SUSPENSION

(Under Section 3 of the Patents, Designs, Copyright and Trade Marks (Emergency) Act, 1939)

No. 558,422 owned by E. Merck-Savory & Moore, Ltd., 61 Welbeck Street, London.

SCHEDULE IV

"COLECTON"; for soaps, cosmetics and hair lotions, etc. (3). By Dr. Ladislav Zakarias, 34 Eagle Road, Bristol. 608,520. (Associated.)

Cobra design with words "For 'Striking' Results" (words "For Striking Results" disclaimed); for disinfectants (5). By B. J. Ellis, Epsom Road, London, E.10. 608,868. (Associated.)

(From "The Trade Marks Journal," January 10, 1940)

SCHEDULE IV

"JOSEPHINE"; for perfumery, etc. (3). By J. C. & J. Field, Ltd., 15 Upper Marsh, London, S.E.1. B604,439.

"AERO"; for hair lotions, not for use as spray (3). By Rowntree & Co., Ltd., Wiggington Road, York. 608,930. (Associated.)

"MARSAN"; for poultry medicines (5). By Evans Sons Lescher & Webb, Ltd., 56 Hanover Street, Liverpool. 607,624.

"CHELMIN"; for pharmaceutical, veterinary and sanitary substances (5). By Willington Medicals, Ltd., Limes Place, Croydon, Surrey. 609,153.

"VARPENE"; for ointments (5). "VARP," for medicinal and pharmaceutical preparations, excluding suppositories (5). By V. Pendleton, Ltd., 2 Catherine Street, Manchester. 609,538/537. (Associated.)

"E. RATCLIFFE" (signature); for medicinal, pharmaceutical, veterinary and sanitary preparations (5). By E. Ratcliffe, 14 Ealing Road, Wembley. 609,660.

"CYCLONAL"; for pharmaceutical preparations (5). By May & Baker, Ltd., 42/43 St. Paul's Churchyard, London, E.C.4. 609,692. (Associated.)

APPLICATION AMENDMENT

The specification for No. 603,762, Class 5, by Les Laboratoires Vitaminor, S.A., has been amended to "A medicated food for children, aged persons and convalescents, consisting of a mixture of vitamised food substances, the vitamin contents of which include only vitamins D and B."

January 27, 1940

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4s. 9d.

THE C. & D. STOCKTAKING PAD. Price 2s. 6d., post free.

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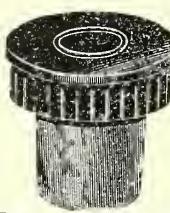
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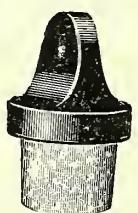
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Information Department

INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated.

K/14 Buxton Radium salts
B/16 Crepex bandage
H/15 Prepared bran

W/15 Sigosin
B/16 Vindex bandage

**THE
CHEMIST AND DRUGGIST**

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Machinery

It is our custom to give annually a survey of the developments which have taken place in the use of machinery in the production of pharmaceutical substances. In the present issue we are following that tradition and, in particular, are emphasising the processes connected with filtration and allied operations. Like many other familiar pieces of work which are carried out day by day in pharmacy, the simple, apparently unimportant task is capable of treatment on a much more extensive and elaborate scale than, at first sight, seems possible. The conical glass, metal or vulcanite funnel, with its filter-medium of paper or wool, is the prototype of the huge plant which is employed in such operations as sugar refining, oil purification and the like. In those vast industries it is usually possible to maintain the plant on the continuous treatment of one kind of material only. The manufacturer of galenicals has to face an altogether different problem. It is not usually open to him to devote one machine to one product only. Even on a large scale of manufacture, compared with the industries we have mentioned the quantities he deals with are relatively small, but they are of almost endless variety. At one time he may be clarifying a syrup, at another a tincture, and at yet another an aqueous preparation. Each kind of liquid calls for a diversity of treatment, and to the actual cost of the operation must be added the cost of frequent cleaning of the plant. It is with such problems as this that the manufacturing chemist is continually faced, and, indeed, we may observe that in the calls which his daily work makes upon the skill and initiative of the pharmaceutical manufacturer, due to the variety of his problems, he is as clearly differentiated from, probably, all other classes of large-scale producer as the retailer is marked out from his distributing *confrères*. The science of chemical engineering has not received the recognition in this country which has been accorded to it overseas. This neglect is, in our opinion, a very grave defect in our scheme of training which should be remedied as speedily as possible. Equally, there should be given a place in the scheme for education of pharmaceutical chemists to pharmaceutical engineering. For the time being attention is being focused upon bio-pharmacy, and, we think, to the point of over-emphasis. If, however, men are to turn out from the schools of pharmacy equipped to take their rightful place in industry, their studies must allow for a comprehensive training in the engineering aspect of their work.

U.K. Trade in 1939

DURING the past few weeks the Government has directed a good deal of its propaganda on the "home front" to the necessity for cutting down imports as much as possible. They have also carried out a publicity campaign emphasising the need for increasing our export trade. The results of our trading activities during 1939, which were recently published by the Board of Trade (see p. 73), should act as a warning of the gravity of our position. For the first time for some decades the total value of merchandise of all descriptions imported into this country was more than double that of our exports of British manufactures, despite the fact that imports during 1939 were down by £34,500,000 compared with the 1938 total. The main cause of the ever widening disparity between arrivals and outward shipments is the steady decline in exports of our goods; they amounted to £521·6 millions in 1937, £470·8 millions in 1938 and £438·8 millions in 1939—a decline of £82·8 millions in three years.

Before reviewing the year's trading figures, it may be said that the effect of the declaration of war in September last was that both imports and exports declined substantially in that and the following month, with a revival in November and December to totals slightly in excess of normal. Imports are divided into three main groups. The first, "Food, Drink and Tobacco" at £399·4 millions, which accounts for nearly half our imports, is £30·6 millions less than the 1938 total. The second group is entitled "Raw materials and articles mainly unmanufactured," imports of which during 1939 totalled £241·5 millions, as against £247·9 millions in 1938. This class of imports is composed mostly of basic materials not available from home sources but required for our manufacturing industries. The third group of imports is "Articles wholly or mainly manufactured," with a total of £237·9 millions for 1939, compared with £233·8 millions in 1938. The main classes of goods in this section of manufactures are "Oils, Fats and Resins, manufactured," "manufactures of non-ferrous metals" and "machinery," with "chemicals" ranking fifth at £15·9 millions.

The returns of "Chemicals, etc." for 1939 show an expansion in our international trade in these products of £3,445,665, as compared with the total of 1938. Imports increased by £2,718,641 and exports (including re-exports) by £727,024. The expansion of imports is due to substantial increases in arrivals during the last two months of the year, with the December total of £1,469,446 the highest for the twelve months. It is satisfactory to note that a similar good recovery in our exports is also recorded, with the total for the last month of the year £2,487,270, which is about £500,000 in excess of the average value of outwards shipments during the first nine months of the year. When the big drop in our seaboard trade in these products in September and October is taken into account, the full recovery in the last two months of the year may be considered highly satisfactory.

The demand for chemicals and allied products of all descriptions in war-time is much greater than when normal conditions prevail. Conditions are likely to be unsettled and difficult, but there is good reason for believing that the trade in the products of this "key" industry will reach record figures in 1940, provided manufacturers, wholesale distributors and retailers go forward with a policy backed by enterprise and confidence. We have the opportunity to

establish trading connexions in many foreign markets previously served by Germany, and we feel assured that our valuable Empire markets will place the bulk of their orders with us. Finally, may we congratulate the British manufacturers in all branches of the chemical and allied industries. The feature of their sales policy has been maintenance of prices at the lowest possible level. In all respects they have fully justified the confidence placed in them in 1921.

Youth—Looking Ahead

As a practical contribution to Lord Derby's plan for employing young men between school and military age, one of the leading industrial undertakings of the country has announced the offer of scholarships providing free commercial training under expert supervision, together with a maintenance grant (*C. & D.*, January 20, p. 39). On account of the war and the disorganisation of trade and industry, and the total or partial closure of schools, thousands of anxious parents throughout the country are faced with the problem of finding useful and progressive employment for their sons of between seventeen and nineteen years of age. Their education has, in the majority of instances, been interrupted with little hope of a return of full facilities; in many others the changed financial circumstances of the parents have necessitated the withdrawal of their sons from the present part-time schools. The position is, of course, further aggravated by the possibility that their future is likely to be interrupted by service with the Forces on reaching the age of nineteen. Work of a temporary war-time character, carrying with it quite good remuneration, is not difficult to secure, but such employment does not form the basis of a career. It is, important, therefore, that the period which immediately precedes service should be usefully employed. Unless adequate provision is made, it is feared there will be, at the cessation of hostilities, a large number of young men with no background of even elementary business experience. The contribution which any one commercial organisation can make to the solution of such a problem is necessarily restricted. There are, however, a limited number of industrial, commercial and financial houses in the country which may be sympathetically inclined towards the adoption of similar scholarship schemes within the means at their disposal. The various branches of the chemical and allied industries, wholesale and retail, would, we believe, provide ideal avenues for this initial period of training for young men whose future is so very uncertain.

The Drug Index, 1932-1939

THE drug index was devised by THE CHEMIST AND DRUGGIST in 1920, to enable retail chemists to see readily the rise or fall of values by comparison with the pre-war year of 1913. Prices for that year were taken as 100, and each month the index figure showed the trend of prices in relation to this figure. For the first ten years there were steep changes, which were easily illustrated by graph, but a period came when the changes were less marked, and stability appeared to have been reached. The average figure for drug prices in 1931 was 128.3. In 1938 the average was 154.7. The year 1939 is, however, not of much value as a guide to price movements. In September changes took place the magnitude of which cannot yet be fully appreciated.

It is interesting to note that the January index was 155.0, as compared with 100 in 1913, and the August figure was 156.2. After that month the relative changes with 1913

DRUGS (1913 = 100)

	1932	1933	1934	1935	1936	1937	1938	1939
January ..	131.6	149.5	144.3	144.3	147.0	149.0	154.3	155.0
February ..	132.0	149.3	144.4	144.4	147.0	151.0	154.3	155.6
March ..	131.5	149.0	143.5	144.6	147.4	151.3	154.5	155.8
April ..	147.3	148.9	143.6	144.6	147.4	151.4	154.5	155.9
May ..	143.3	148.7	143.6	144.7	147.4	151.5	154.3	156.0
June ..	147.4	148.6	143.5	144.7	147.0	152.6	154.0	156.2
July ..	147.1	149.3	143.5	145.0	147.3	152.7	155.2	156.2
August ..	147.5	149.2	141.2	144.6	147.4	152.7	155.2	156.2
September ..	148.7	146.7	140.6	146.0	148.0	154.0	155.1	170.1
October ..	146.6	146.7	140.3	146.8	147.9	154.0	155.1	173.6
November ..	146.8	146.8	140.2	146.9	147.9	154.0	155.0	174.0
December ..	150.0	146.6	140.2	147.0	148.3	154.3	155.0	180.0

DRESSINGS (1913 = 100)

January ..	135.0	136.5	136.5	136.3	136.2	137.1	138.6	138.2
February ..	135.0	136.5	136.5	136.3	136.2	137.1	138.0	138.2
March ..	135.3	136.5	136.0	136.2	136.5	138.0	138.5	138.2
April ..	135.7	136.5	136.0	136.2	136.5	138.0	138.5	138.2
May ..	135.7	136.5	136.0	136.2	136.5	138.0	138.5	138.2
June ..	136.0	136.5	136.0	136.2	136.6	138.5	138.3	138.2
July ..	136.0	136.5	136.0	136.2	136.6	138.5	138.3	138.2
August ..	136.0	136.5	136.0	136.2	136.6	138.5	138.3	138.2
September ..	136.4	136.5	136.3	136.2	136.7	138.5	138.2	172.4
October ..	136.4	136.5	136.3	136.2	136.7	138.5	138.2	172.4
November ..	136.4	136.5	136.3	136.2	136.7	138.5	138.2	172.4
December ..	136.5	136.5	136.3	136.2	137.1	138.6	138.2	194.0

(pre world-war, 1914-18) prices are shown in the table, but, owing to the changed conditions, these figures lose a certain amount of significance.

In surgical dressings the effect has been different. In the world war the prices of dressings became more strikingly increased than they are at the present time, and it was not until nearly ten years had passed that something like the levels obtaining in 1938 were reached. The economic crisis had scarcely any effect on surgical dressings' prices, and in the table presented it will be seen that in 1932 the index figure of surgical dressings, as compared with 1913, was 136.0. This changed materially in September last, and the variations cannot yet be accurately compared.

The table given below terminates a period. The outbreak of the present war requires a new basis on which to construct the next index figure of drug prices. In accordance with our practice this will be published monthly, at the same time as we give changes of prices.

Sugar for Pharmaceutical Purposes

In our issue of January 13, p. 29, we urged that in the event of sugar supplies being restricted, the drug trade should not be called upon to curtail their purchases as in the case of other consumers. A scheme for allocating supplies of sugar for manufacturing purposes has now been drawn up by the Ministry of Food, and under this arrangement the drug trade is to receive 100 per cent. of its requirements. Manufacturers of Chocolate receive 70 per cent., sundry beverages 65 per cent., and certain confectionery manufacturers 60 per cent., mineral waters 25 per cent. In arriving at these quotas, consideration has been given to the importance of the different products concerned, the general intention being to maintain the type of essential products at as high a level as possible. In a number of the industries that have been rationed, it is possible to use substitutes to some extent, but as explained in the article referred to above, there is no suitable substitute for sugar used for pharmaceutical purposes, when the product concerned is used medicinally. The allocations are to be subject to review from time to time in accordance with national interests.

Filtration Apparatus

HERE can be few operations in chemical manufacture for which filtration is not called at some stage in the process, and it is not surprising, therefore, that a wide variety of methods have been devised and developed on an industrial scale. In the following paragraphs are set out practical notes on some of the best known of such systems, or on those most suitable for users in the drug, chemical and allied trades. For this purpose, it has been borne in mind that two important functions of many manufacturers today are research and analysis. Details of methods of laboratory filtration have therefore been included, as well as notes on accessories.

Metafilters

A method of filtration to which the name metafiltration has been given is carried out with apparatus manufactured by the METAFILTRATION CO., LTD., Hounslow. Metafiltration is essentially a combination of two operations. The liquid to be filtered is passed through apertures of a prearranged size in a specially devised metallic or other structure, thus preventing the passage of particles above a corresponding diameter, while, by the simultaneous use of a filter-bed, the fineness of filtration can be brought "to the borders of fields usually considered accessible only to ultra filters."

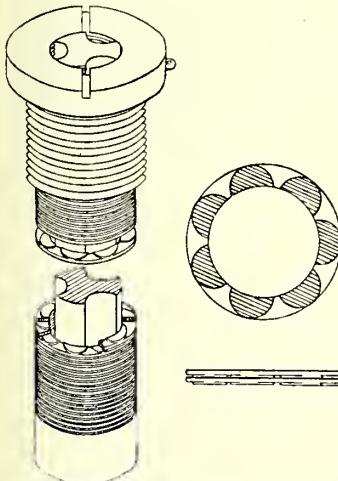
Adaptation of these methods to many industrial purposes has resulted in a wide range of models being marketed by the makers. The business was founded by the inventor, and owns patents in all important countries. The main basic patents cover two types—filters with renewable filter-beds and filters with renewable pockets. The latter is chiefly used with lubricating oils and need not be discussed here. The first model of renewable-bed filter introduced a succession of strips in a frame. The strip may be constructed of any suitable metal or of one of several non-metallic materials, the essential being that the material used is unattacked by the liquid undergoing filtration. A series or column of strips forms a foundation for the filter-bed. The design of the strip is important because the functioning of the process depends upon its special construction. Each separate strip is flat on the under surface and bevelled along its upper edges, and the plate is pierced with uniform holes at equal intervals. On the upper (bevelled) side a ridge or rib runs the length of the strip; this ridge is slightly narrower than the diameter of the piercings. Thus, when one plate is placed upon another, the upper is raised by the thickness of the ridge from the plane surface of the lower, and there is a minute gap at each piercing through which liquids, as well as any particles of less diameter than the gap, pass. By varying the height of the rib and/or the diameter of the piercing, the fineness of filtration is controlled. In practice the rib varies from 0.001 to 0.005 in. in height. When a system of strips is made up, the piercings form a continuous, vertical drainage tube for the filtered liquid. Two or more systems in frames may have their drainage tubes connected to a main drainage manifold, thus correspondingly multiplying the speed of filtration. In a later variant the strips are replaced by rings of not more than 1 in. diameter. As with the strip formation, it is necessary that there should be a regular channel between each ring. This channel was first obtained by embossing on each side of alternate rings, the intermediate rings being plain. One result of this method of securing the channel was, however, that the drainage space was large compared with

the amount of surface in contact with the adjacent ring. With many liquids this resulted in a low velocity of flow, whereas, so long as back-pressure remains negligible, high velocity is generally desirable. The disadvantages of the pip ring led to further experiments, resulting in the introduction of a scalloped ring, with several advantages over its predecessor. Not only does this scalloped ring permit high-velocity flow and offer large surface contact with ample peripheral drainage, but it abolishes the need for alternating rings of different construction. The reason for this is that, as in the strips, the embossed surface is imparted to the upper surface only, the lower surface being flat. It is claimed that as the flow space on each ring is both reduced and scientifically designed, and the surface contact relatively large, the processes of manufacture and testing are simple, mistakes in construction practically impossible, results are consistent and the filter-bed formation and dispersal perfect. The height of the embossing varies from 0.001 to 0.008 in. to suit liquids of differing viscosity, or filter-beds of differing composition, but the spacing for most purposes is between 0.002 and 0.004 in.

For the filter-beds the materials available are powdered or activated charcoal, kieselguhr, magnesium carbonate and silica, the company's own selected and tested materials being issued under the brand name Metasil. When the accumulated residue slows down the rate of filtration to an uneconomic level, the bed is removed by back-flushing with water, steam, compressed air, or the filtrate itself. In some models a sloping base is fitted to facilitate this operation, while, if it is thought desirable, the strips or rings can be brushed or scraped without dismantling the system. A further practical advantage is that the filtering units are held together without solder or brazing, so that no trouble is likely to arise from electrolytic corrosion or mechanical ill-use. Nor, of course, are there any costs of replacement of filter cloths. Generally Metafilters can be left for long periods unattended; stopping and restarting after changing the filter-bed are a matter of a few minutes; and in most models inspection can be carried out without opening up the apparatus. See illustration, p. 67.

Stream-line Filters

A type of filter that involves a novel principle is that known as the Stream-line and invented by Dr. H. S. Hele-Shaw, F.R.S. Reduced to its simplest terms this filter consists of a column of paper discs compressed together and pierced through the centre to form a conduit for the filtered liquid. The liquid that is to undergo filtration is forced by pressure or drawn by vacuum through the paper column to the inner conduit, the inequalities of surface between the separate sheets forming passages of an almost molecular fineness. Dirt particles are trapped on the outside of the column and on the cut edge of the filter papers. Each pack is mounted on a square rod, which leaves a space in the cylindrical bore of the paper column through which the



Metafilter ring column with (right) surface view of scalloped ring and diagrammatic vertical section of two rings in position.

was the "strip" type, in which was placed one upon the other in a frame. The strip may be constructed of any suitable metal or of one of several non-metallic materials, the essential being that the material used is unattacked by the liquid undergoing filtration. A series or column of strips forms a foundation for the filter-bed. The design of the strip is important because the functioning of the process depends upon its special construction. Each separate strip is flat on the under surface and bevelled along its upper edges, and the plate is pierced with uniform holes at equal intervals. On the upper (bevelled) side a ridge or rib runs the length of the strip; this ridge is slightly narrower than the diameter of the piercings. Thus, when one plate is placed upon another, the upper is raised by the thickness of the ridge from the plane surface of the lower, and there is a minute gap at each piercing through which liquids, as well as any particles of less diameter than the gap, pass. By varying the height of the rib and/or the diameter of the piercing, the fineness of filtration is controlled. In practice the rib varies from 0.001 to 0.005 in. in height. When a system of strips is made up, the piercings form a continuous, vertical drainage tube for the filtered liquid. Two or more systems in frames may have their drainage tubes connected to a main drainage manifold, thus correspondingly multiplying the speed of filtration. In a later variant the strips are replaced by rings of not more than 1 in. diameter. As with the strip formation, it is necessary that there should be a regular channel between each ring. This channel was first obtained by embossing on each side of alternate rings, the intermediate rings being plain. One result of this method of securing the channel was, however, that the drainage space was large compared with

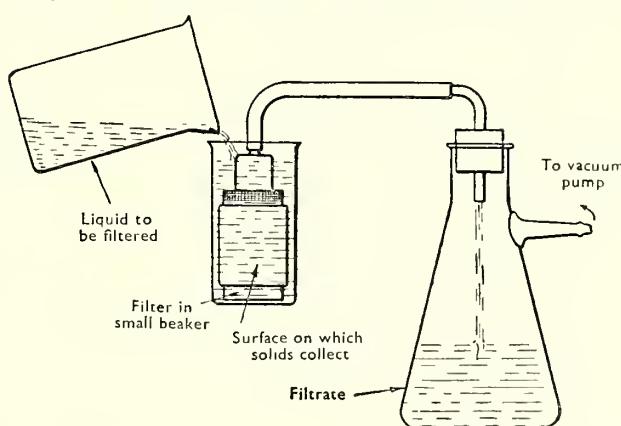
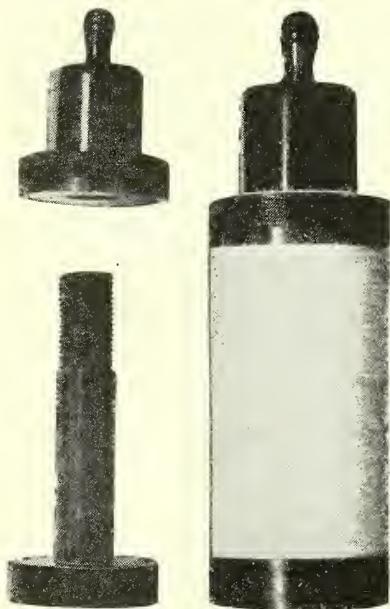


Diagram showing method of use of laboratory Stream-line filter.

filtered liquid passes. The solid particles filtered out form a cake on the outer surface of the column. Gradually the accumulating matter reduces the rate of filtration, but a reversed flow of compressed air serves to remove the whole of the cake and

restore the filter to its original condition. Stream-line filters are in widespread use in the lubricating-oil industry, for which purpose outfits comprising more than one column are usually



Head and spindle (left) of Stream-line laboratory filter and (right) head screwed down on papers to complete the filter.

by the use of a spring head. Various grades of pack are issued: for analytical purposes, for acids and strong alkaline liquors, for lubricating oils, and for insulating, fuel and edible oils and aqueous liquids. The method of use of the laboratory model is illustrated diagrammatically on the previous page. Stream-line filters are made by STREAM-LINE FILTERS, LTD., London.

Centrifugal Separation

A method of clarification that has come into considerable prominence in recent times is that of centrifugal separation. By this process solids and heavier liquids in a mixture are impelled to the periphery of the apparatus, while lighter liquids pass to the centre, suitable means being employed to draw them off for use, or to be thrown away, according to their usefulness. Among manufacturers of this type of machinery is the ALFA-LAVAL CO., LTD., Brentford, one of whose machines, the laboratory model, is here described (see illustration, on opposite page).

The De Laval laboratory separator, size 100, is used for the continuous separation or clarification of all types of liquids. The machine consists of a bowl rotating upon a vertical spindle at a speed of 8,000 revolutions per minute. The liquid to be treated is fed into this bowl by means of a hopper or inlet funnel, and the separated liquids are thrown off from the bowl by centrifugal force and collected in suitable receiving covers fitted with discharge spouts. During its passage through the separator bowl, centrifugal force causes the heavier liquid and solids to travel to the periphery of the bowl, whilst the lighter liquid passes towards the centre. Under centrifugal force the liquid is divided into thin layers by the conical discs. These ensure that the separated ingredients have only to travel a distance of less than 0.5 mm. before being removed from the flow of liquid; their use increases the output of the separator approximately ten times and also enables the finest particles to be removed at a relatively low bowl speed. This relatively low speed of rotation results in the advantages of low wear and tear of moving parts, quiet running and small degree of aeration in the separated liquid. The separator is provided with a removable separator bowl, which, with fittings supplied separately, can be assembled for use in any of the following capacities:

- (a) As clarifier, for the removal of suspended solids from a liquid,
- (b) As separator, for the continuous separation of two immiscible liquids with simultaneous extraction of suspended solids,
- (c) As batch clarifier, for the clarification of small batches of liquid, and

(d) As washing separator, for the intimate mixing of two immiscible liquids followed by their complete separation (as in solvent extraction). The design of the laboratory separator follows closely the lines of the company's large commercial machines, and the results obtained with it can be translated directly to a works scale. Supply factors relating to any size of commercial separator are available from the makers—a feature appreciated by research chemists engaged in experimental work on technical processes. The laboratory machine has a maximum output of 25 gallons per hour, with material of suitable viscosity. As its bowl capacity is only 250 c.c., it is eminently suited for use with small samples.

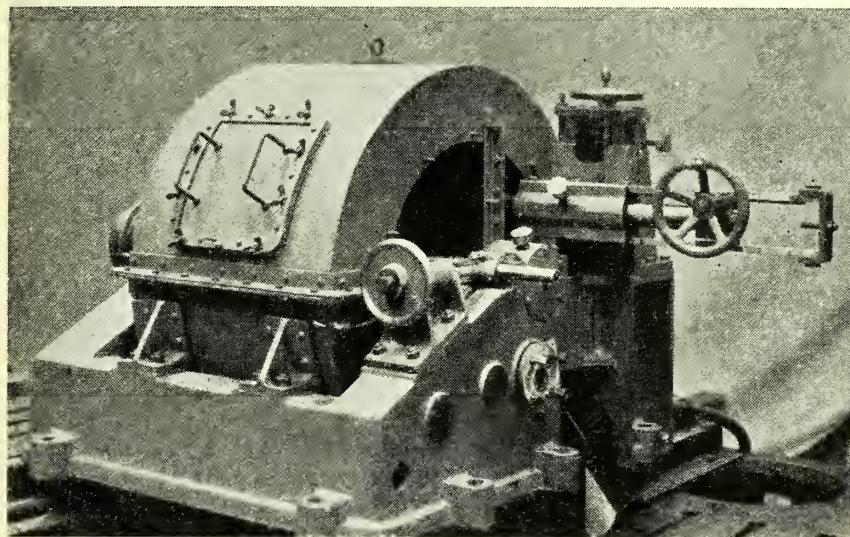
Some typical uses of the laboratory centrifuge are for the removal of bacteria from cultures in liquid media; the breaking-down of emulsions; extraction of solvents; clarification of vegetable oils; separation of tar emulsions, etc. Equipped with special separator bowls, the centrifuges are adaptable for blood-serum separation and emulsification of immiscible liquids.

High-speed and Bulk Centrifuges

The Sharples super-centrifuge (see opposite page) develops the highest commercial centrifugal force of any centrifuge on the market, a force 13,200 times that of gravity; this is attained by making the bowl revolve at 15,000 revolutions per minute. Separations can thus be carried out that would be impossible with a lower force. Despite this exceptional force being produced, the design is of simple character and ease of handling and operation are features. The machine is also stated to operate with lower stresses, strains, bearing speeds, peripheral speeds and gyroscopic couple than similarly rated slow-speed machines. The cross-section of the liquid under treatment is uniform from end to end, thus avoiding turbulence of flow. Flow of liquid is at right angles to the direction of centrifugal force, and does not oppose the direction of travel of separated materials, while liquid inlets and outlets are far apart, thus avoiding discharge of untreated liquid. The Sharples horizontal bulk centrifuge, which is widely used by chemical manufacturers throughout the world, is constructed to operate continuously, without shutting down; it discharges solids while the basket is running at full speed, and the basket revolves in a vertical plane about a horizontal axis, differing in this respect from the usual type of bulk centrifuge. These features result in economies in power and labour, because they provide a larger output, size for size, than centrifuges of normal design. The baskets can be of imperforate type for sedimentation purposes, when the liquid can be decanted and solids discharged automatically, or of perforate type for draining purposes (drying of crystals, etc.).

The Super-D-Hydrator, a variety of horizontal bulk centrifuge, is automatic and requires no labour for its operation. When operating as a decanter for the clarification of liquids and recovery of the liquid or solid matter, or both, the horizontal centrifugal employs a solid basket. Operation may be on the continuous flow or on the batch principle. For the former, liquid containing solid matter is discharged behind the cone into the revolving basket. Vanes are provided in the cone to accelerate the liquid and bring it up to the basket speed as the liquid moves outwards towards the periphery, when the material for treatment is subjected to the full centrifugal force generated. The solid particles are deposited on the wall of the basket while the liquid moves across the basket in a direction parallel to the axis of rotation. When the solid matter, or cake, has formed and reached the maximum depth, the feed is cut off, supernatant liquor skimmed down to the cake surface, and cake removed. This is accomplished while the machine is operating at full speed, by a cutter, which is turned into and then traverses the cake. Solids loosened by the cutter are discharged out of the frame through the discharge chute. In the batch system of operation, the cycle consists of feeding, spinning, decanting and then unloading. When operating as a hydro-extractor for dehydrating crystals or granular solids the horizontal centrifugal employs a perforate basket lined with screens or other media suited to the size of the crystal to be handled. The slurry of liquid and solid flows into the basket by means of a slotted feed-pipe extending across the entire width of the basket. The crystals are thus evenly deposited. The liquid is thrown out into the casing of the machine and drained out of the bottom. When the cake has reached its maximum thickness the feed is cut off and the cake whizzed to remove excess liquor. When ready for unloading, the cutter is turned into the cake and across it. The crystals loosened by the cutter are discharged out of the frame through the discharge chute. In some cases it is desirable

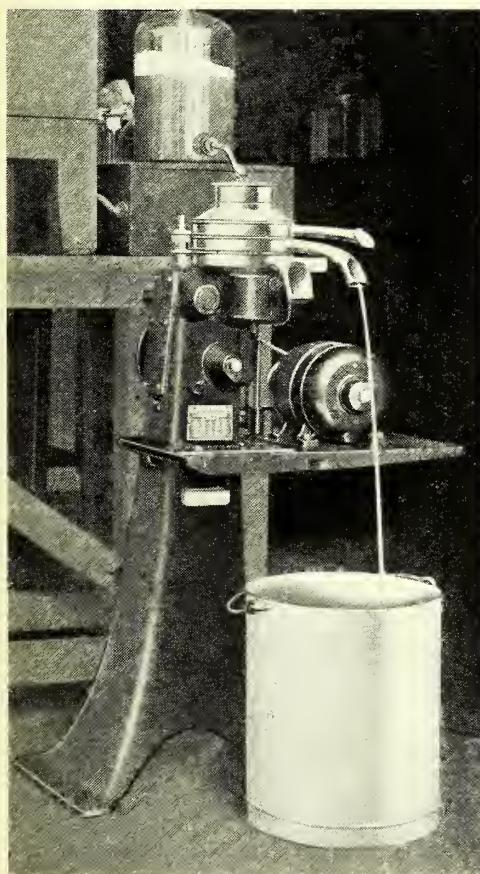
Machinery for Filtration



36-in. horizontal bulk centrifuge of decanter type, fitted with copper-covered basket (SHARPLES CENTRIFUGES, LTD.)

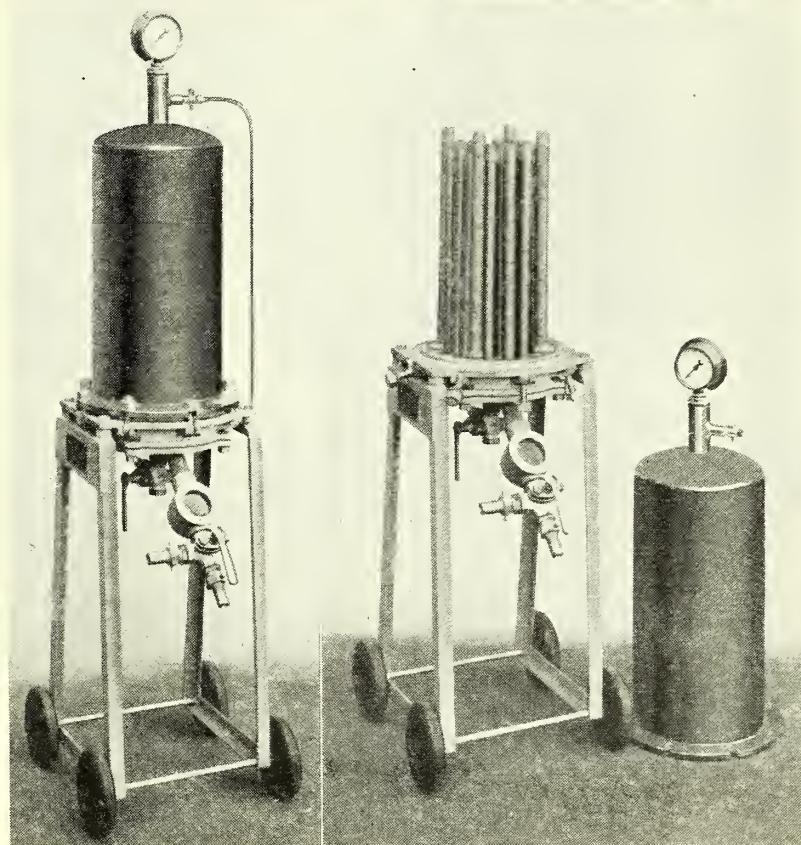


(At right) Motor-driven Vaportite super centrifuge suitable for use in chemical processes (SHARPLES CENTRIFUGES, LTD.)



Size 100 De Laval centrifugal clarifier installed in pathological laboratory for separation of bacterial cultures (ALFA-LAVAL CO., LTD.). Similar machines have been supplied to many hospitals and manufacturers

(Below) Syrup filter, closed (left) showing monel-metal dome, outlet sight glass and carriage; and open (right) showing filtering columns (METAFILTRATION, LTD.)

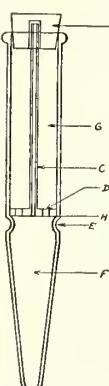


to wash the crystals free from the adhering original liquid. This can be accomplished in the centrifuge, before unloading, by means of a rinse pipe so arranged as to give an even spray across the entire width of the basket.

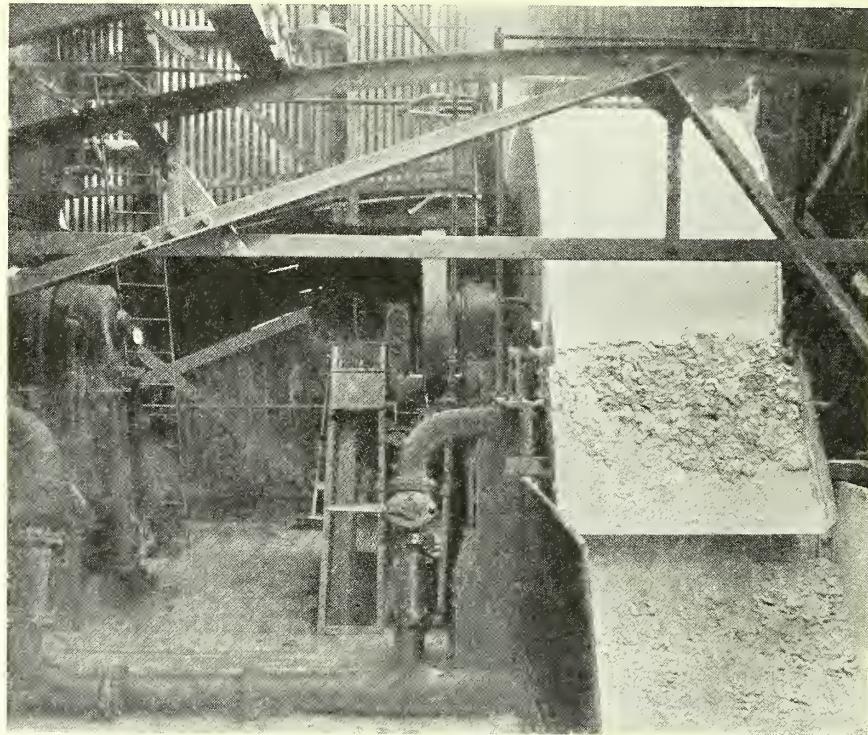
Other Sharples machines are the laboratory-super and ultra centrifuges. The first is for sedimentation of solids from liquids; clarification of liquids; or separation of immiscible liquids occurring as mixtures and emulsions. These operations are performed continuously. Liquid is fed into the rotating bowl of the machine, where it is subjected to a separating force as high as 62,000 times the force of gravity. It is then discharged continuously. Solids collecting in the rotating bowl are periodically removed. The ultra-centrifuge will separate two liquids that in solution cause molecules to sediment under its intense force, colloids to concentrate so that their rate of movement can be photographically measured, or filtrable virus to be concentrated. Speed of light has already been measured by mounting a mirror on a high-speed air-driven top, such as is used for the turbine of the Sharples ultra-centrifuge. Strength of materials has been measured, using small samples put under strain by high centrifugal force. Isotopes have been separated in a special rotor. An ultracentrifuge differs from normal centrifuges in that it generates a speed of 80,000 r.p.m. and a maximum centrifugal force of 250,000 times gravity; it operates with an almost complete absence of temperature differential in the sample. Sharples machines are British made, being constructed by SHARPLES CENTRIFUGES, LTD., at Lightpill Iron Works, Stroud, Gloucestershire.

A Centrifuge Tube Filter

The separation of solid substances from a liquid when relatively small amounts of material are being used often presents considerable difficulty, especially when the specific gravity of the solid is close to that of the liquid. A filter designed to overcome the difficulty is described by Perrine and Kump in "Industrial and Engineering Chemistry," December, 1939, p. 658, and has the following advantages. While easy to construct from inexpensive material, it conforms in dimensions to the ordinary centrifuge tube, and will fit into apparatus designed to take such tubes. The only substances which come into contact with the contents of the tube are glass and filter-paper, and the filter may be used at high or low temperatures. A constriction is made on an ordinary heat-resisting 15 c.c. centrifuge tube (E in the accompanying diagram), in such position that the lower part of the tube (F) will be only slightly smaller in capacity than the upper part (G). The filter plate (D), through which holes have been ground, is made to fit inside the centrifuge tube and ground to rest on the shoulder (H). The filter stem (C), a 3-mm. heat-resisting tube, permits equalisation of pressure between the chambers F and G.



A filter-paper is cut to fit inside the centrifuge tube with a small central hole cut to take the filter-plate stem. One or more similar filter-papers are slipped over the stem and pushed down with a glass rod. The mixture to be filtered is poured on to the filter and centrifuged after insertion of the rubber stopper. The filtrate can be drawn off through the filter stem, without disturbing the precipitate, by means of a capillary dropper. The residue on the filter can then be removed almost quantitatively by withdrawing the filter plate. In order to use the filter at above or below room temperature the substance undergoing treatment, the filter and centrifuge-tube shield are pre-heated or pre-cooled. The substance is then rapidly transferred to the filter and centrifuged.



Rovac filtration installation for chemical cake drying (INTERNATIONAL COMBUSTION, LTD.).

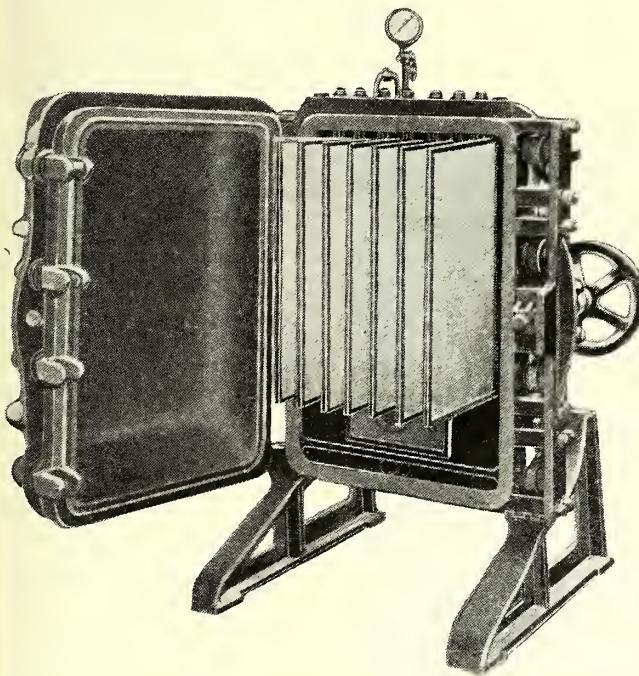
Rovac Installations

A filter that makes a wide appeal to industrial and research chemists is the Rovac, manufactured by INTERNATIONAL COMBUSTION, LTD., London. This filter is particularly valuable when used as a de-watering device, for which purpose it must be considered immeasurably superior to the old batch-washing process for washing filter cake. Many Rovac installations are in operation in plants throughout this country at which are handled such diverse products as caustic-lime mud, starch and pigments. The filter, the latest type of which operates with a variable vacuum, can be used as either a drying agent, in which case it is possible to get cakes with as little moisture content as 20 per cent., or as a cake washer. In the latter event, spray jets are fitted on bars above the drum, and as the cake rises out of the trough high-pressure hot or cold water is forced on to it. As the submergence of the drum into the trough is small (it may vary from 5 per cent. in special applications to 40 per cent. for normal working) there is a considerable period of time during which the cake may be washed before it is discharged from the drum by the action of a scraper knife in conjunction with an air-blower. The filters range in sizes from 3 sq. ft. for laboratory use to 350 sq. ft. for use in the largest chemical plants. The nature of chemical installations is such that even in normal times secrecy is desired, so that no figures of operating results obtained can be given. Inquiries, however, are always given close attention by the makers, and a complete small-scale test plant is available for trying out samples.

Leaf Filters

A convenient form in which to make use of filter cloths is the leaf filter. A good example of this class of filtration apparatus is the Easifilt enclosed vertical leaf filter manufactured by MANLOVE, ALLIOTT & CO., LTD. This combines features conducive to high rates of filtration with facilities for rapid cleaning and discharge. Having only one joint, the machine avoids leakage and the leaves can, for many purposes, be covered with durable, wire-woven filter-cloth. These factors make the apparatus suitable for handling solvents, liquids containing dissolved gases under pressure, clarification, and processes in which the solids build up a compact cake freely. The filter consists of leaves arranged in a chamber constructed as two halves or "clams" having a single vertical joint. The material to be filtered is pumped into the chamber and cake builds up on the leaves, while the liquid passes through internal drainage channels to

outlets at the top of the filter. The cakes on adjacent leaves are kept apart. Washing is readily carried out and the leaves may be dried by vacuum, compressed air, or steam. Owing to the speed at which the filter may be cleaned and set for work again, it is often advisable to allow only thin cakes of solid to form.



Eosifilt vertical leaf filter, showing main fixed leaves and removable leaf in discharge sump (MANLOVE, ALLIOTT & CO., LTD.).

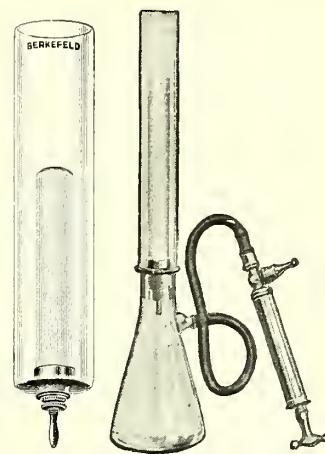
The filter cloth is supported on a coarse wire foundation having two drain channels, one communicating with the bottom and the other with the top of the leaf. These channels are of large sectional area and provide free escape for the filtered liquor; they are separately controlled so that the bottom outlet may be used alone when the cake is finally dried out. The arrangement of feed passages and distributing plate causes the incoming liquid to sweep over the whole sloping bottom of the filter, producing a circulation which is of assistance in building up an even cake. The feed channel is arranged in the joint surface of the filter and both it and the distributing plate are easily cleared, if necessary, when the filter is opened. The filter is supplied in two main types of construction: a floating type in which the whole battery of leaves may be drawn forward; and a fixed-leaf type, in which a space is left between the leaves and the bottom of the filter to act as a shoot or sump. The latter pattern is usually supplied where the filter must be lined with special materials. The standard leaves supplied are either of all-wire construction or are arranged to take cloth bags.

Filter Candles

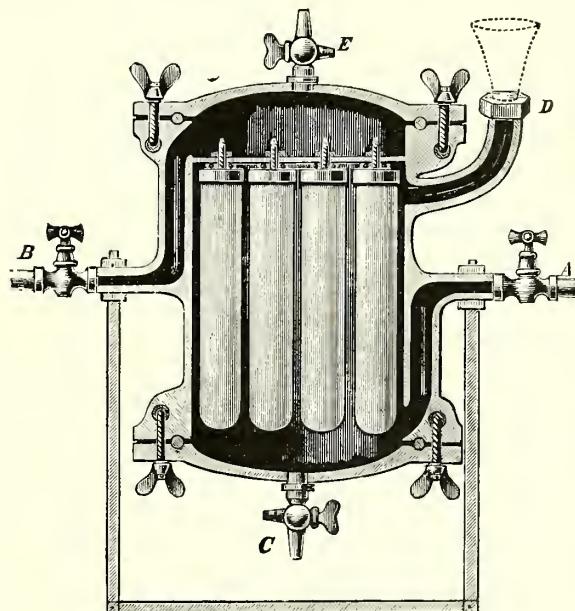
In plants concerned with the manufacture and purification of chemicals and medicines the importance of a pure water supply can hardly be over-estimated. Although the water delivered from the reservoirs of public supply authorities has of course been purified, there is always the risk of impurities having collected during its course through lengths of piping. Moreover, where water is stored in open cisterns, there is the further danger of contamination from dust, flies, insects, etc. With well water there is risk of contamination from surface drainage, dead leaves, etc. As a precautionary measure, the use of an apparatus such as the filter candle is to be recommended. The candles manufactured by BERKEFELD FILTERS & WATER SOFTENERS, LTD., Tonbridge, are widely recognised as being of proved efficiency. The filtering medium is in the form of hollow cylinders or "candles" of kieselguhr (infusorial or siliceous earth), which, on account of its exceptional porosity, is an ideal filtering medium. The cylinders are completely closed at one end, and the other end is fitted into a metal (or porcelain) mount. Water passes from the outside to the inside of these hollow cylinders, leaving

all impurities on the exterior, from which it is easily removed periodically by means of a loofah or soft brush. When a Berkefeld filter is put into service, the first few pints to pass through the candle should be allowed to run to waste. Bacteria as well as suspended matter are filtered out, provided due attention is paid to regular cleaning and sterilising. For large users, Berkefeld filters are available in batteries in pressure cylinders, as illustrated.

A thin coating of washed kieselguhr is deposited over the cylinders, upon which the impurities from the filtered liquid accumulate. When filtration begins to slow down, the whole of the impurities can be completely thrown off and washed away without the filter being opened or taken to pieces. Depositing the kieselguhr is effected as follows. After the inlet tap (*A* in diagrammatic section below) has been connected with supply pipe, and the cylinders fitted in proper position, a small quantity of the kieselguhr powder is poured through inlet pipe (*D*) (one oz. per five or six cylinders). After having been well mixed up in $\frac{1}{2}$ to 2 gallons of water, the cap is screwed down and inlet tap (*A*) turned on, when the incoming water spreads the finely suspended kieselguhr evenly over the surface of the filtering cylinders. For cleaning, when filtration gets slow, first inlet tap (*A*) and then outlet tap (*B*) are shut, flush tap (*C*) is opened a little (to relieve pressure in filter case) and, by gentle strokes of the inflator, connected



Berkefeld monte and cylinder (left), shown fitted (right) into sterilising apparatus with exhaust pump attached.



Multiple-candle filter for large users of water (BERKEFELD FILTERS AND WATER SOFTENERS, LTD.).

by a small length of tubing with air-cock (*E*) the filter water remaining inside the filtering cylinders is forced backwards. Thus the coating of kieselguhr, together with all the impurities collected on it, is thrown off. The case is well flushed by opening taps *C* and *A*, and emptied by shutting *A* and opening *D*, when the filter can be recharged as above. Berkefeld filter candles are in use in Government Departments, institutions, and industrial undertakings in most parts of the world.

Filter Papers

Samples of the Postlip range of filter papers have been sent in by EVANS, ADLARD & CO., LTD. These are in a variety of grades for particular purposes and include white filterings with capacity (based on water passing in 5 minutes through a 5-in. circle) of 290 cc., 390 cc. and 460 cc., hard papers for use with the finest precipitates; embossed papers suitable for sugar, fruit juices, oils and other heavy liquids; thick papers for use with spirits and perfumes; grey filterings in various thicknesses; and white papers for agar filtering. A report of tests carried out on the Postlip papers by the National Physical Laboratory, Teddington, states:—

"The following tests have been undertaken: Determination of ash and of its constancy for each kind of paper, rate of filtration, and the ability to retain very finely divided precipitates in those cases where the description of the paper indicated that it was designed for this purpose. . . . A sheet of each paper measuring 24½ in. × 24½ in. was divided into two equal portions and carefully ignited. The results obtained in each case indicate that all the papers are very uniform in mineral content. . . . The papers submitted appear to answer very fully the description indicated by the makers and to be suitable for all purposes of filtration where the use of a paper whose ash-content has been lowered by extraction with hydrochloric and hydrofluoric acids is not regarded as essential."

Acid-resisting Filter Materials

A range of filter materials that includes kieselguhr and porcelain filter-tubes as well as porous ceramic filter tiles, discs, etc., is issued by DOULTON & CO., LTD., London.

The filter candles in porcelain prevent the direct passage of micro-organisms. The candle is completed with porcelain nipple to which tubing may be connected. The kieselguhr type was produced to meet the demand for a British product equal to the best Continental makes. Pressure filters, both single- and multi-tubed, are also listed. The function of the acid-resisting porous ceramic materials is the removal of large particles of suspended matter. They may have a pore size much larger than the filters of porcelain or kieselguhr, and they are issued in a variety of shapes. Filters of this type are suitable for many operations such as the filtration of gases and liquids and the fusion of gases or liquids into liquids. Five standard porosities are offered, and special grades can be produced by the makers to meet many unusual conditions. The materials are resistant to all acids except hydrofluoric, while special types may be produced to withstand the attacks of weak or concentrated alkalis. A new type recently introduced embodies the ceramic material made and fired into a non-porous surround, without jointing material. The usual form is a disc, but tubes, vessels, tiles, etc., are also made, one part of which may be porous and the remainder solid. The advantages claimed for porous ceramic filters are:—

1. Regulated porosity and permeability.
2. High resistance to aggressive chemicals.
3. Good resistance to thermal shock and to high temperatures.
4. High mechanical strength and adaptability for use in various types of filters.
5. Regularity of pore distribution.

The high degree of mechanical strength of porous ceramic

filters is one of their outstanding features, making them adaptable for use in vacuum filters, pressure filters, rotary filters, centrifuges and similar apparatus. They can be manufactured in a great variety of shapes and sizes. The homogeneity of pore distribution and their mechanical strength make ceramic filtering media particularly suitable for use in gas filtration. The reaction of substances on one another in the gaseous state is a common industrial process, and frequent use is made of catalysts to hasten the velocity of reaction.

Traces of impurities, however, can bring about a "poisoning" of the catalysts, rendering them ineffective. A thorough cleaning of the components of reaction is therefore a primary essential for undisturbed processes of contact. As most of these components are gases, the question of gas filtration assumes a particular importance.

Air and gases of every temperature may be finely diffused in liquids by passing them through porous filters, from which they rise to the surface of the liquid in the form of countless small bubbles. Many filtering operations today present difficulties on account of the colloidal condition of matter to be separated. Messrs. Doulton have produced a range of filters for use in this connexion, particularly in the preparation of certain pharmaceutical products. Examples are removal of oil from colloidal suspension in water, and removal of suspended impurities from oils.

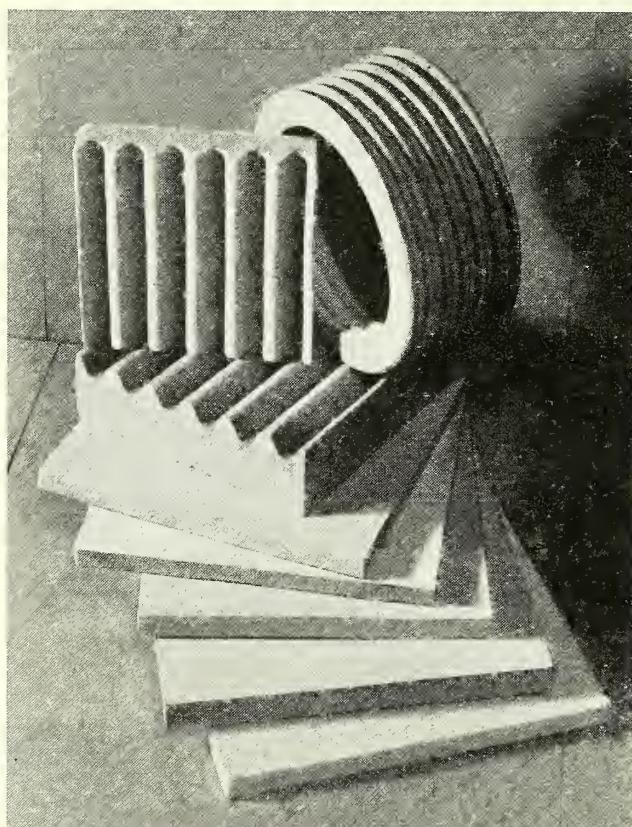
Sterilising by Filter

For both clarifying and sterilising filtration, the Seitz E. K. laboratory filters and Pilot sheet filters (JOHN C. CARLSON) offer an ideal apparatus. They are of particular value in the sterilisation of sensitive liquids under heat. The E. K. filters are manufactured in various sizes capable of handling from 20 c.c.

to 2 litres of serum per day, whilst Pilot filters range in capacity from 2 litres to 16 litres of serum per day up to 30/40 gallons of aqueous liquors per hour. In the Pilot the sterilising filter-sheets are interchangeable with those of other degrees of coarseness that are needed for the ordinary processes of filtration, for the use of sterilising sheets for ordinary filtration is as exhausting to the usefulness of sterilising sheets as it is an impediment to the speedy clarification of the liquid. The procedure, therefore, is first to produce a brilliantly clear liquid by filtration and then to eliminate the micro-organisms by passing liquid through the E.K. sheets. For sterilising serums, antitoxins and injections a modified sheet, the Special E.K., is prepared by the makers. The filtering unit consists of a filtering sheet between two filter plates. Both types were fully described and illustrated in the C. & D. Annual Machinery Number, 1938 (I, 93).

Filter Cloths

Filter-press screens and wire filter cloths in Staybrite steel, monel metal, nickel alloys, phosphor bronze, tinned steel, tinned brass, etc., under the brand name Durite are issued in any mesh up to 200 per linear inch by THOMAS LOCKER & CO., LTD., Warrington. Messrs. Locker claim to be pioneers in the manufacture of stainless steel gauze. Perforated filter plates to exact size are also manufactured. Metallic screens are suitable foundations for filter rings. In these, filter-cloth is usually placed on both sides of the grid, which is immersed in the liquid. Suction (by pump) draws the latter through an outlet in the ring.



Industrial filter shapes and tiles in acid-resistant porous ceramic material (DOULTON & CO., LTD.)

Filtration Factors

THE objects of filtration may be either the collection of a precipitate, in which case the filtrate may be rejected, or the clarification of a liquid, when the solids removed are valueless. In either case the process must be carried out expeditiously, so as to preclude, as far as possible, settling of dust on the precipitate or liquid, and to avert chemical changes which might occur in either of them on exposure to air. Furthermore, as in all industrial operations, it must be borne in mind that "time is money," and that the more rapidly the process can be completed, the greater the saving in cost. The factors which influence the rate of the process may be deduced from the theory of the passage of a liquid through capillary tubes. The rate of flow of a liquid through a capillary is given by Poiseuille's law:—

$$V = \frac{\pi R^4 (P - p)}{8l\eta}$$

Where V = rate of flow; R = radius of capillary; l = length of capillary; η = coefficient of viscosity of liquid; P = pressure of downward column of air; p = pressure of upward column of air.

If the filter bed contains N capillaries the formula becomes:—

$$V = \frac{N\pi R^4 (P - p)}{8l\eta}$$

In any filter bed, the factor l varies as the thickness of material, and in a given area of the filter material the value of R must be lessened if the value of N is increased. Poiseuille's formula is applicable to a straight capillary, but in a filtering medium the capillaries, i.e. the pores between the particles of the material, are necessarily distorted. Whilst the value of l as a straight line may be determined by simple measurement of the thickness of the filter bed, its value is, of course, increased by the windings of the pores, and cannot be exactly determined. The value of the factor lies therefore in this—that the rate of the filtration varies inversely as the thickness of the bed, other factors being equal. In like manner, the value of R is not invariable throughout the material, and, as a consequence, it can be deduced that the rate of filtration varies as the fourth power radius of the

capillaries. Since R must have a value expressed as a fraction, its fourth power must be very small indeed, and the rate of filtration is greatly reduced by using a fine filter bed.

If $P = p$, the expression $(P - p) = 0$ and, mathematically, $V = 0$; thus the whole process would be brought to a standstill. The expression $(P - p)$ can, in practice, never be *nil*, for the weight of the column of liquid must be added to P , so that the operation is continuous, though the rate will progressively diminish as the weight of the column becomes less. The value of P may be increased by augmenting the atmospheric pressure behind or above the liquid as is done, on a large scale, in the filter press, or, on a small scale, by increasing the surface exposed to the atmosphere, as in a conical filter-funnel. If, conversely, the value of p be lowered, the expression $(P - p)$ becomes greater, and the value of V is correspondingly increased. Advantage is taken of this in suction or vacuum filtration. As regards the viscosity of the liquid (η), the rate of filtration varies inversely as the viscosity. Thus glycerin solutions, of high viscosity, pass through a filter much more slowly than alcoholic liquids. The viscosity of a liquid is, however, much reduced on raising its temperature, and if the operation of filtration is carried out at a high temperature, at which the viscosity of the liquid is lowered, the rate of filtration can be greatly accelerated.

Whilst the Poiseuille formula is of great value in stating the factors which affect the rate of filtration, mathematical accuracy in arriving at a value of V is not possible. As has been pointed out, some of the factors are not susceptible to exact evaluation, and, moreover, rate of flow is influenced by other factors, not appearing in the expression. Thus opposite electrical charges may reside on the particles undergoing filtration and on the material of the filter bed. In that event, the charges are neutralised on being brought into contact, and flocculation occurs, resulting in the deposition of the now electrically-neutral particles on the pores of the filter, and resultant choking of the bed. Adsorption on the filter material may take place, with a tendency to decelerate the process. Indeed, adsorption is often desired, as in the decolorisation of coloured liquid by animal charcoal, and in sterilisation of liquids such as injections.

Storage and Processing Vessels

IN making a choice of the materials of which vessels for the processing or the storage of pharmaceutical preparations, whether galenical or chemical, are made, regard must be had to the possibility of interaction between the preparation and the material of the vessel, to the durability of the vat and to ease of cleaning. The important materials may be summarised.

Wood.—Wooden vessels may be used for storage, as they are relatively cheap and strong. They suffer from the disadvantage of yielding soluble compounds to alcohol, with the result that considerable alterations may be made to the appearance and flavour of the alcoholic preparation. This fact is utilised in the distilling industry: for whisky is matured in sherry casks which impart to the spirit its colour and some of the flavour from the components of the wine which have saturated the wood. Wooden vessels may be used in the processes of precipitation and mixing, but care must be given to the selection of timber suited to the preparation. Recently, successful experiments have been carried out in lining wooden tanks with sheet rubber, which prevents direct contact of the liquid with the wood. It will be seen that it is desirable, if wood vessels are used for storage of galenicals, that one vessel should be reserved for storing one preparation only, otherwise the flavour of the first may be imparted to a second galenical kept in the same vat.

Cast Iron.—Cast iron suffers from the disadvantages of fragility and susceptibility to chemical action with acid materials. For the latter reason, cast-iron vessels are usually lined with enamel, when, in effect, the cast iron serves as a support for the enamel coating which is, in reality, the material of which the vessel is formed. Enamel itself is subject to the drawback that it chips readily, exposing the cast-iron surface beneath it. Considerable progress has been made in recent years in the quality of enamels, with the result that they are more resistant to chemical reaction and of much greater durability and hardness than formerly. Enamel is easily cleaned and presents a light-coloured surface which facilitates control of evaporation.

Steel.—While steel is much more durable than cast iron, it is as susceptible to attack from acid materials as cast iron itself. This is not the place to summarise the various types of stainless steel that have been evolved in recent years, but it is important to notice that stainless steel is winning rapidly a most important place in the construction of plant in processing and storage of foodstuffs and of chemical and pharmaceutical substances. It is naturally rather more expensive in first cost, but prime cost is easily off-set by greater life and freedom from corrosion. The labour costs in cleaning may be reduced to a low level.

Monel Metal.—Another material which is finding increasing favour is monel metal, an alloy containing a high proportion of nickel. In appearance it is not unlike stainless steel, and, like stainless steels, is highly resistant to attacks by chemical substances. It is becoming increasingly the practice in chemical works to replace the older types of material by these new alloys.

Copper.—The use of copper vessels has for long been associated with pharmaceutical practice. Where heat is involved in the process, copper has the advantages of high conductivity and low specific heat, with consequent reduction in the cost of fuel. It is, moreover, easily worked, and in that respect compares most favourably with both stainless steel and monel metals. Against the use of copper may be urged the fact that it is easily distorted and readily attacked by mineral and organic acids, and even poisonous proportions of copper may be introduced into a galenical preparation as a result of using a copper evaporating pan. The liability to attack of copper is greatly reduced by the process of tinning, a process in which all the advantages of copper are retained, though tin becomes in effect the material of which the processing or storage vessel is composed. Great care must be taken in maintenance of the tinning intact, and frequent re-tinning may be necessary. The tin surface shows a marked tendency to blister, and each blister forms a weak point in the surface.

Aluminium.—The use of aluminium vessels has been urged, and modern methods of manufacture of aluminium have reduced

its cost, but aluminium vessels are easily distorted and are subject to attack by alkaline substances.

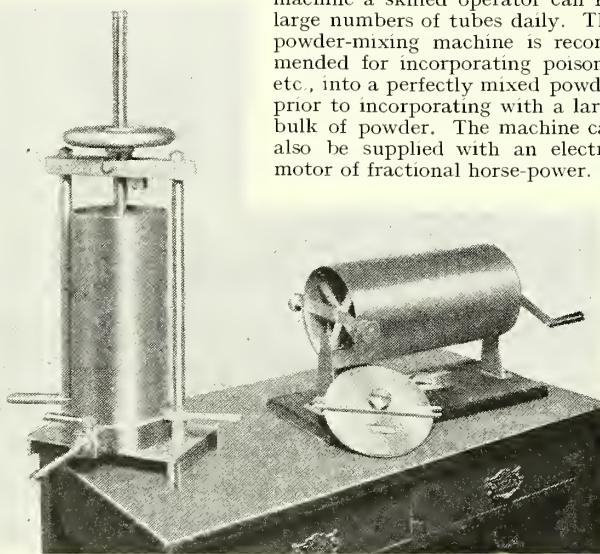
Stoneware.—Stoneware vessels still hold their place for the storage of galenicals. A well-glazed stone vessel is not subject to attack by a large range of chemicals, is impervious, and is easily cleaned. It is fragile, however, if it is to be subjected to much handling, though strong if left in an undisturbed position.

Glass.—Glass vessels occupy a time-honoured place in pharmacy, and we may point out that the public has always associated the retail pharmacist with his array of attractive, well-kept glass bottles. In the production of glass, astonishing progress has been made. New types of glass have been evolved for different purposes. Glass, of course, is fragile, and suffers from the drawback of admitting light which may adversely affect photo-sensitive chemicals. The importance of this fact is becoming increasingly evident with the production of complex organic chemicals that is characteristic of medical practice of today.

The aim of the glass manufacturer has been, therefore, to produce types of glass that are more durable, more resistant to chemical reaction and more capable of excluding the injurious ultraviolet rays which are, in the main, responsible for chemical changes on exposure to light. The highly-resistant glasses of the Pyrex, Hysil and Monax types have been largely utilised in the construction of chemical apparatus and in production plant. In particular, glass phials that are to be used for the issue of sterile injections must be free from excess alkali, and glasses are now being produced which comply with these requirements. In the chemical laboratory, the assembly of a piece of apparatus for any given experiment has often been a long and troublesome process, because of the necessity of fitting and boring corks or rubber stoppers, the former being somewhat porous and the latter liable to attack by organic solvents. These drawbacks have been overcome by the development of standardised ground-glass joints, which permit of the rapid assembly of apparatus and quick interchange of parts.

Machinery Notes

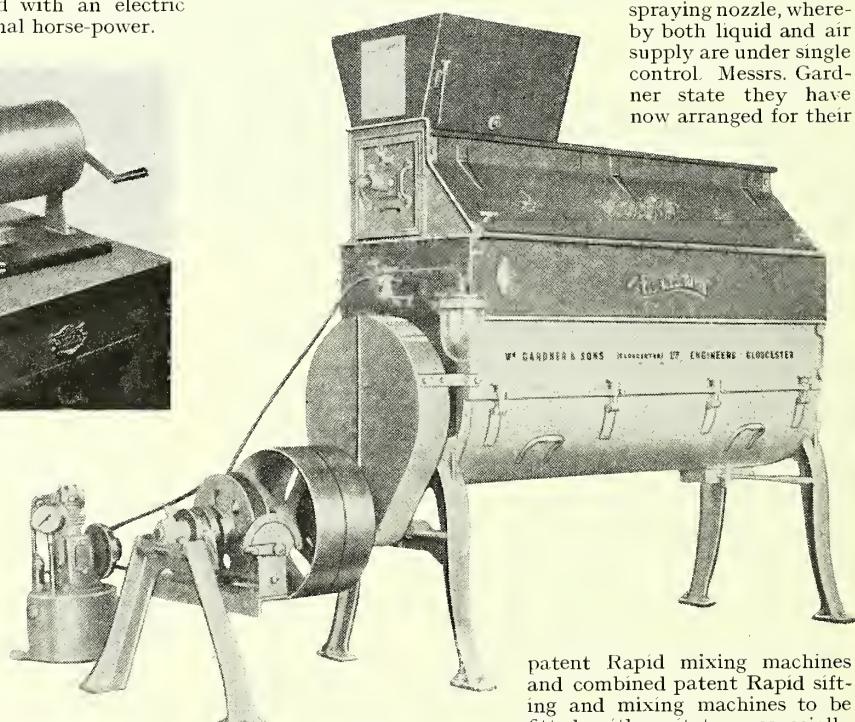
SMALL-SCALE MACHINES.—Two recently-introduced small-scale machines constructed by the WEISSBERG ENGINEERING CO., 14 Weedington Road, London, N.W.5, are a hand tube-filling machine with a capacity of 6 to 10 lb. of ointment or cream and a hand powder-mixing machine (left and right in the illustration). Mandrels of various sizes from $\frac{1}{2}$ oz. upwards are issued for the tube-filling machine, and these are interchangeable; by means of the machine a skilled operator can fill large numbers of tubes daily. The powder-mixing machine is recommended for incorporating poisons, etc., into a perfectly mixed powder prior to incorporating with a large bulk of powder. The machine can also be supplied with an electric motor of fractional horse-power.



VACUUM FILLING.—A patent vacuum double-seaming machine of semi-automatic type with four-roller head is issued by the PREMIER FILTERPRESS CO., LTD., Wallington. The machine has an automatic, stationary-tin seaming head. The vacuumising period is automatically controlled, and the output speed is up to 1,200 tins per hour.

ATLAS MIXERS AND SIFTERS.—H. & L. Atlas mixers and sifters, manufactured by GEORGE PORTEUS & SONS (LEEDS), LTD., Leeds Bridge Works, Leeds 10, are offered in a number of varieties for different products, the latest designs having special measuring devices to ensure accuracy of mixing. Spraying attachments can be fitted.

HAND AND POWER EMULSIFIERS.—ORMEROD ENGINEERS, LTD., Shawclough, Rochdale, advertise in this issue their Q.P. emulsifier in stainless metal for making small quantities of hair creams, hand creams, etc.; attention is also drawn to a power model with capacity of 20 to 25 gall. per hour.



patent Rapid mixing machines and combined patent Rapid sifting and mixing machines to be fitted with agitators especially designed to suit the particular conditions in which the machines operate. Troughs of mixers are, when desired, supplied with enamel interiors or constructed of special metals to resist corrosion.

SCREENING EQUIPMENT.—All types of screening equipment are advertised in this issue by N. GREENING & SONS, LTD., Britannia Works, Warrington, Lancs, who direct special attention to the accuracy of their wire screens, whether woven or perforated.

United Kingdom Trade in 1939

THE Board of Trade accounts of the trade of the United Kingdom during 1939 are restricted to totals of imports, exports and re-exports of the main groups of merchandise. The usual details showing the sources from which imports were drawn and destinations of outward shipments are not given. We are therefore

unable to give the usual tables showing the values of shipments of British chemical products to each Empire and foreign country, and details of sources of supply of our imports of these products. The returns for 1939 are reviewed editorially on p. 63 of this issue.

The values of Britain's international trade in all classes of merchandise, exclusive of bullion and specie, for the years under review were:—

Year	Imports	U.K. Goods Exported	Re-exports	Total Exports	Total International Trade	Debit Trade Balance
1939	* £ 885,943,767	* £ 438,806,078	* £ 45,925,476	* £ 484,731,554	£ 1,370,675,321	£ 401,212,213
1938	920,437,586	470,883,489	61,607,985	532,491,474	1,452,929,060	387,946,112
1937	1,020,064,626	521,594,386	75,166,655	596,761,041	1,625,825,667	432,303,585
1936	848,935,895	440,718,784	60,135,361	500,854,145	1,349,790,040	348,081,750

* Preliminary official figures, subject to correction.

The aggregate totals for the years 1936 to 1939 in the group "Chemicals, Drugs, Dyes and Colours" were as follows:—

Year	Imports	U.K. Goods Exported	Re-exports	Total Exports	Total International Trade	Credit Trade Balance
1939	£ 15,933,268	22,777,595	469,778	£ 23,247,373	£ 39,180,641	£ 7,314,105
1938	13,214,627	22,048,681	471,668	22,520,349	35,734,976	9,305,722
1937	13,837,325	24,660,151	469,663	25,129,814	38,907,139	11,292,489
1936	12,584,235	21,099,090	403,676	21,502,766	34,087,001	8,981,531

Commercial Notes

U.S.A. Crude Drug Exports.—Europe receives most of the crude drug exports from the United States of America, approximately 40 per cent. of the total coming to the United Kingdom. Canada is also a leading buyer, taking more than 20 per cent. of the amount exported. Exports of crude drugs, excluding ginseng, in the last few years were as follows:—

Year	lb.	\$	Year	lb.	\$
1934	3,437,025	446,400	1937	5,121,981	799,647
1935	4,668,491	576,672	1938	4,123,531	752,011
1936	4,416,547	635,271	1938 (Jan. to Sept.)	3,649,804	559,059

Union of South Africa Glycerin Imports.—Incoming shipments of crude glycerin, in bulk, in 1938, were valued at £260,846, compared with a value of £137,300 in 1937, a 90 per cent. increase. France furnished half of the imports. In 1938 a 9 per cent. decrease was registered in the value of distilled glycerin, £279,471 worth being brought in as against £307,313 worth in 1937. The United Kingdom furnished 90 per cent. of these imports.

German Iodine Trade.—Prior to 1935 Germany obtained its supplies of crude iodine from Chile, Norway, Japan and the United States, but, with the arrangement of a trade agreement with Chile in 1935-1936, purchases of iodine were concentrated in that country. Imports and exports for past years were as follows:—

Year	Imports		Exports		Net Imports	
	Kilos	1,000 marks	Kilos	1,000 marks	Kilos	1,000 marks
1931	150,200	4,443	62,400	2,270	87,800	2,173
1932	68,200	1,651	31,000	891	37,200	760
1933	85,100	1,426	35,200	630	49,900	796
1934	103,000	702	45,400	482	57,600	220
1935	288,400	1,699	59,900	483	228,500	1,216
1936	294,500	1,612	61,400	483	233,100	1,129
1937	210,200	1,156	58,300	413	151,900	743
1938	169,000	930	42,200	289	126,800	641
7 mths. 1938	169,000	930	21,600	141	147,400	789
7 mths. 1939	139,600	767	32,100	237	107,500	530

German exports of iodine derivatives, including potassium, sodium and ammonium iodides and iodoform, during the five years prior to

1938, averaged 80,000 kilos annually. It is reported that a new bromine derivative, produced by a German firm, has been adopted by the German army as its standard antiseptic. The bactericidal property of the new compound is said to compare favourably with that of iodine. The new preparation, being made entirely of German materials, will permit existing stocks of iodine in Germany to be used for commercial purposes.

Japanese Camphor Exports.—Exports of camphor from Japan during the first three quarters of 1939 increased to 1,442,000 kin, valued at 2,925,799 yen, from 1,167,400 kin, valued at 2,295,780 yen, in the corresponding nine months of 1938. Destinations and quantities were as follows:—

Destination	1938 (9 months)		1939 (9 months)	
	100 kin	Yen	100 kin	Yen
British India	3,552	676,783	3,394	708,931
Straits Settlements	184	42,223	195	40,856
Great Britain	142	28,628	253	47,222
France	793	172,233	580	118,564
Germany	248	49,841	451	83,443
Netherlands	219	44,510	391	84,116
Australia	507	109,523	468	100,950
United States	3,848	723,425	5,278	1,061,086
Other countries	2,181	448,614	3,410	680,631

Malayan Derris Industry.—The area under Derris in Malaya at the end of 1938 was 4,106 acres, compared with 4,854 acres in 1937. Derris root sold on rotenone content averaged \$21.67 per picul in Singapore and root sold on the basis of ether-extract \$13.63 per picul. Derris root is in competition with cube root, which has similar toxic qualities. On the American market this competition was keen, and buyers who purchased cube in preference to derris were influenced purely on the price factor. Net Malayan exports were 676 tons, valued at \$306,801, compared with 573 tons, valued at \$384,000, in 1937.

French Vanillin Exports.—Shipments of vanillin from France during the first half of 1939 totalled 517 metric quintals, valued at 4,320,000 francs, of which 318 quintals (3,974,000 francs) went to foreign countries and 199 quintals (346,000 francs) were exported to French colonies, while in the first half of 1938 total exports of vanillin totalled 443 metric quintals, valued at 4,373,000 francs, of which 327 quintals (4,194,000 francs) went to foreign countries and 116 (179,000 francs) was exported to French colonies.

Trade Report

Where possible scales of prices of chemicals are given for bulk down to small quantities. Prices recorded for crude drugs, essential and fixed oils and coal tar products are for fair sized wholesale quantities. Qualities of chemicals, drugs, essential and fixed oils, etc., vary, and selected brands or grades would be at higher values. Notices of changed prices should continue to be sent to 28 Essex Street, London, W.C.2, until further notice. Late prices are given in the Coloured Supplement

28 Essex Street, W.C.2, January 24

A RATHER quiet tone has persisted in most markets, but a fair volume of business continues and in most directions prices are well maintained. The only slight weaknesses noted are in respect of some of the Mincing Lane products, which, after moving up sharply, have now fallen back slightly from the highest values recorded. Makers and dealers alike report that the demand for PHARMACEUTICAL CHEMICALS continues fairly satisfactory, and prices in this market remain steady, with some increases recorded. The makers' home trade price for CITRIC ACID has been advanced. IODIDES continue firm at the increases recorded last week. The makers of METHYLATED ETHERS notify a slight increase in prices, chiefly on account of the recent advance in spirits. On account of continued advances in the price of the raw material, makers of EXT. IPECAC. have had to increase their sales prices, and it will not be surprising if the quotation for EMETINE HYDROCHLORIDE, which is at present very firm, is advanced in the near future.

Crude Drugs

A moderate trade spread over a number of lines in this market is recorded. AGAR is quoted generally unchanged, with re-sellers discounting shippers' prices. There is no improvement in the position of Curaçao ALOES as regards supplies. Considerable interest is shown in CAMPHOR on the London market but, beyond fair quantities of synthetic material, there is little available, and Japanese shippers are only able to offer limited quantities of tablets for forward shipment. British makers' prices for refined flowers and tablets are unchanged. Bergen reports Lofoten fishing has been poor; consequently, the shipment market for Norwegian COD LIVER OIL is firmer. With no shipment offers and little material on spot, the ERGOT market is practically nominal. Sudan GUM ACACIA is slightly easier on spot. An active demand for HONEY on the London market is reported, and prices are dearer, with the market firm. HYDRASTIS is quoted sharply dearer forward, and spot values have moved up accordingly. The position as regards supplies of Matto Grosso IPECACUANHA continues acute, and any material available is at high prices; there are no shipment offers. RUBBER shows a good advance and closes firm. Good prices were obtained at the recent public auction of Seychelles VANILLOES.

Essential Oils

Trade in these products has been only moderate, but, on account of the general low level of stocks and the firm shipment conditions, values are well maintained and further increases are recorded. Expressed ALMOND tends rather dearer. ANISE (STAR) is dull and easy. There is no change in the Consortium price for new-crop BERGAMOT. Dutch CARAWAY is slightly dearer. Quotations for CASSIA are firmer, although the demand is small. Generally easier prices are quoted for both CITRONELLA oils. A fair inquiry is reported for new-crop Sicilian LEMON, and prices are a little more attractive. The Californian oils are quoted slightly dearer in sterling. LEMONGRASS has been dull and is quoted cheaper. A cable states that Tonquin MUSK has advanced. Lower prices are now being quoted by shippers for new-crop French Guinea ORANGE, but the demand remains quiet. The California oil is quoted slightly dearer in sterling. Spot values for PALMAROSA are again dearer and shipment quotations have advanced. The only shipment offer noted of PATCHOULI is for the Java product at a very high figure. In PEPPERMINT the Chinese product is doing most of the business in London; Japanese shippers' quotations continue at very high figures indeed. A cabled advice from Bulgaria states that shipment prices for Rose have been increased 20 per cent.

Exchange Rates on London

The following is a list of the chief Continental and other exchange rates at the opening on Wednesday morning:-

Centre	Quoted	Par	January 17	January 24
Amsterdam ..	Fls. to £	12·107	7·52*	7·55*
Berlin ..	Mks. to £	20·46	—	—
Brussels ..	Belgas to £	nominal	23·87*	23·87*
Copenhagen ..	Kr. to £	18·159	20·8	20·8
Lisbon ..	Esc. to £	110	108	108
Madrid ..	Ptas to £	25·242	38·75	38·75
Milan ..	Lire to £	92·46	78·1	78
Montreal ..	Dols. to £	4·86*	4·45*	4·45*
New York ..	Dols. to £	nominal	4·03*	4·03*
Oslo ..	Kr. to £	18·159	17·20*	17·20*
Paris ..	Fr. to £	124·21	176·8*	176·8*
Prague ..	Kr. to £	164·25	—	—
Stockholm ..	Kr. to £	18·150	16·90*	16·90*
Warsaw ..	Zloty to £	43·38	—	—
Zurich ..	Frs. to £	22·2115	17·90*	17·90*

* Rate fixed by Bank of England.

Bank rate, 2 per cent.

Pharmaceutical Chemicals, etc.

A RATHER quiet tone is reported in this market, with quoted values steady and generally unchanged. Makers of citric acid have advanced their prices, but cream of tartar and tartaric acid are unchanged. Iodides continue firm at the advance recorded last week.

ACETANILIDE.—Steady on a quiet market: B.P., leviss., quoted at from 2s. 3d. to 2s. 6d. per lb., as to quantity.

AMIDOPYRINE.—Small supplies, dealers' prices firm: One cwt., 16s.; smaller quantities, up to 17s. per lb. for crystals, with powder 3d. per lb. extra.

AMMONIUM ICHTHIOSULPHONATE.—Dealers' prices are steady: One-cwt. lots, in 1-lb. tins, 3s. 3d.; smaller lots, 3s. 6d.; in 14-lb. tins, one cwt., 2s. 9d.; smaller lots, 3s. per lb., ex store.

ASPIRIN.—Makers' scales of prices continue steady:

Quantity	In containers of					
	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
1 lb. and under 4 lb. . .	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
4 lb. and under 7 lb. . .	3 10 $\frac{1}{2}$	3 9	—	—	—	—
7 lb. and under 14 lb. . .	3 9 $\frac{1}{2}$	3 8	3 7 $\frac{1}{2}$	—	—	—
14 lb. and under 28 lb. . .	3 8 $\frac{1}{2}$	3 7	3 6 $\frac{1}{2}$	3 6 $\frac{1}{2}$	—	—
28 lb. and under 1 cwt. . .	3 7 $\frac{1}{2}$	3 6	3 5 $\frac{1}{2}$	3 5 $\frac{1}{2}$	3 5	—
Not less than 1 cwt. . . .	3 6 $\frac{1}{2}$	3 5	3 4 $\frac{1}{2}$	3 4 $\frac{1}{2}$	3 4 $\frac{1}{2}$	3 3 $\frac{1}{2}$
2 11 $\frac{1}{2}$	2 10	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 8*
2 11	2 11	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 9 $\frac{1}{2}$	2 8
"	2 10	2 8 $\frac{1}{2}$	2 8 $\frac{1}{2}$	2 7 $\frac{1}{2}$	2 7 $\frac{1}{2}$	2 7

* 8 × 14 lb. and upwards in one delivery, ½d. per lb. less.

Sale is subject to an undertaking on part of buyer not to re-sell any quantity at prices or terms below scale for such quantity current at time re-sale is made, and, if he converts the aspirin into tablets, not to sell any quantity of tablets at prices or terms below the scale for such quantity current at time of sale.

ASPIRIN (TABLETS).—Makers' scale of prices continues unchanged: Under 5,000, 3s. 10d.; 5,000, 2s. 11d.; 10,000, 2s. 10d.; 25,000, 2s. 8d.; 50,000, 2s. 7d.; 100,000, 2s. 6d.; 250,000, 2s. 6d.; 500,000, 2s. 5d.; 1,000,000, 2s. 4d.; 2,000,000, 2s. 3d. per 1,000. Re-sale clause applies to all bulk sales.

BARBITONE.—Quiet but fully steady: One cwt., 22s. 6d.; 28 lb. 23s. 6d.; smaller quantities, up to 27s. per lb., ex store.

BENZOIC ACID (B.P.).—Makers report that their prices are unchanged: and range from 1s. 10d. per lb. for bulk quantities up to 2s. 3d. per lb. for small parcels.

BISMUTH SALTS.—Makers' prices for the following are unchanged:—

	Less than 4 lb.	4 lb.	8 lb.	28 lb.	1 cwt.
	s. d.	s. d.	s. d.	s. d.	s. d.
Carbonate, B.P. . . .	10 10	10 4	9 7	8 3	8 0
Citrate, B.P.C. . . .	13 0	12 6	11 9	10 1	9 10
Nitrate, cryst. . . .	7 4	6 10	6 1	5 4	5 1
Oxide, B.P.C. . . .	14 5	13 11	13 2	11 3	11 0
Oxychloride, B.P. . . .	13 11	13 5	12 8	10 10	10 7
Saficlyate, B.P. . . .	10 9	10 3	9 6	8 3	8 0
Subgallate, B.P.C. . . .	10 6	10 0	9 3	7 11	7 8
Subnitrate, B.P.C. . . .	9 4	8 10	8 1	7 0	6 9

Rebate of threepence per lb. allowed on sales of not less than 2 cwt. (either for prompt delivery or on contract) provided delivery is completed within three months. Contracts subject to rise-and-fall clause.

BORAX (B.P.).—Makers' prices are steady: Granulated, £28 10s.; crystals, £29 10s.; powder, £30 per ton, in 1-cwt. bags, carriage paid in Great Britain, in minimum one-ton lots. Commercial quality, £8 per ton less.

BROMIDES.—Makers' scales of prices are firm. The scales are as follows: POTASSIUM (B.P.), not less than 5 cwt., 2s. 2d.; 1 cwt., 2s. 3d.; 28 lb., 2s. 9d. per lb. SODIUM (B.P.), not less than 5 cwt., 2s. 4d.; 1 cwt., 2s. 5d.; 28 lb., 3s. per lb. AMMONIUM (B.P.C.), not less than 5 cwt., 2s. 5d.; 1 cwt., 2s. 6d.; 28 lb., 3s. 1d. per lb. Net. Rise-and-fall and re-sale clauses apply. Without engagement. Special prices for larger quantities. 28-lb. parcels and 1-cwt. cases or kegs free.

Caffeine.—There are still no firm shipment offers from Holland. A fair quantity of material has been arriving in London but it is nearly all sold forward. The limited supplies of PURE that may be offered would be at not less than 18s. per lb., ex store.

CITRIC ACID (B.P. CRYSTALS).—British makers notify an advance in their basic price for home trade and now quote from 1s. 2d. per lb., less 5 per cent. discount. Supplies are limited to regular consumer customers. Dealers' prices are dearer at from 1s. 8d. per lb. upwards.

CREAM OF TARTAR.—The home trade price to consumers quoted by British makers is nominal and unchanged at 12s. per cwt., less 2½ per cent. discount. Any supplies in dealers' hands would be valued at not less than 15s. per cwt., ex store.

CREOSOTE (B.P.).—Small demand, quoted unchanged. Valued at 2s. 9d. to 3s. per lb.

CREOSOTE (BEECHWOOD).—Dealers are quoting quantities in 25-kilo demijohns at from 2s. 9d., and smaller quantities at up to 3s. 3d. per lb., ex store.

EPHEDRINE.—The demand for HYDROCHLORIDE, B.P., is distinctly quiet and prices tend to be a shade easier, with bulk quantities at about 1s. 9d. to 12s. per oz.; smaller parcels, about 12s. 6d. to 13s. per oz. PER ALKALOID at the usual premium.

GALLIC ACID.—Quiet but firm; dealers quote cwt. lots at from 3s. 9d. and smaller parcels at up to 4s. 3d. per lb., ex store.

GUAIACOL CARBONATE.—Dealers are quoting limited quantities at 12s. 6d. to 13s. per lb., ex store.

HEXAMINE.—Moderate business at steady prices: Free-running crystals quoted at about 1s. 7½d. for bulk quantities up to 1s. 10d. per lb., for small parcels; powder at cheaper prices.

HOMATROPINE.—Makers' prices are as follows:—

	gm.	oz.	4 oz.	16 oz.	
Alkaloid	2s. 9d.	70s.	65s. oz.	60s. oz.	
Hydrochloride	2s. 2d.	55s.	50s. oz.	45s. oz.	
Hydrobromide	2s. 2d.	55s.	50s. oz.	45s. oz.	
Sulphate	2s. 2d.	55s.	50s. oz.	45s. oz.	
PACKAGES	Under 5 gm. or $\frac{1}{4}$ oz.	5 gm. to 25 gm. or $\frac{1}{4}$ oz. to 1 oz.	25 gm. or 1 oz.	50 gm. or 2 oz.	100 gm. and over
Bottles, corked, each ..	3d.	3½d.	3½d.	4d.	included
Bottles, stoppered, each ..	5d.	6d.	7½d.	9d.	included
5-gr. tubes, per 100 ..	10s. 6d.				
10-gr. tubes, per 100 ..	12s. 3d.				
15-gr. tubes, per 100 ..	14s. od.				

IODIDES.—Makers' scales of prices continue firm at the advances recorded last week: POTASSIUM is advanced by three pence and the other sales by four pence per lb. for wholesale quantities. The new scales are as follows: POTASSIUM, B.P., not less than 1 cwt., 8s.; 28 lb., 8s. 6d.; 14 lb., 9s.; 7 lb., 10s. 2d.; 4 lb., 10s. 8d.; smaller quantities, 11s. 2d. per lb. SODIUM, B.P., not less than 28 lb., 8s. 6d.; 14 lb., 9s. 4d.; 7 lb., 10s. 9d.; 4 lb., 11s. 5d.; smaller quantities, 12s. 3d. per lb. IODINE, B.P., RESUB., not less than 1 cwt., 9s. 2d.; 28 lb., 9s. 8d.; 14 lb., 10s. 2d.; 7 lb., 11s. 7d.; 4 lb., 12s. 3d.; smaller quantities, 13s. per lb. IODOFORM, B.P. (CRYST. PRECIP. OR POWDER), not less than 28 lb., 11s. 4d.; 14 lb., 11s. 10d.; 7 lb., 13s. 9d.; 4 lb., 14s. 7d.; smaller quantities, 15s. 5d. per lb. Contracts for 1 cwt. and upwards (assorted if desired) for delivery as required during three months, with the following clause: Price applicable to any delivery is that in force on date of dispatch. One-cwt. cases charged extra; 28-lb. tins 2s. each and non-returnable. All bottles charged but credited in full if received back carriage-paid in good condition within three months. Carriage paid on any quantity. Assorted quantities charged at collective total prices on orders for 14 lb. and upwards. It is a condition of sale that buyers undertake not to resell any quantity at prices or terms below scale for such quantity current at time re-sale is made.

LACTIC ACID (B.P.).—Values maintained, moderate business. Quantities, in 1-cwt. carboys, 1s. 6d. to 1s. 7½d.; in winchesters and bottles, 1s. 9d. to 2s. per lb., ex store.

MERCURY IODIDES.—Owing to increases in cost of raw materials, makers' prices were advanced last week. The new scales are as follows: RED, less than 7 lb., 15s. 1d.; not less than 7 lb., 14s. 9d.; not less than 14 lb., 14s. 3d. per lb. GREEN, less than 7 lb., 16s. 4d.; not less than 7 lb., 16s.; not less than 14 lb., 15s. 6d. per lb. YELLOW, less than 7 lb., 17s. 7d.; not less than 7 lb., 17s. 3d.; not less than 14 lb., 16s. 9d. per lb. net, carriage paid.

METHYLATED ETHERS.—Makers' prices for all quantities have been advanced ½d. per lb. This increase is due to the recent advance of 3½d. per gall. in methylated spirits.

METHYL SULPHONAL.—A very small supply on spot is valued at about 40s. per lb., ex store.

PARALDEHYDE.—Spot prices for quantities, in 1-cwt. carboys, steady at 1s. 3d. to 1s. 3½d.; smaller quantities, in winchesters, up to 1s. 10d. per lb., ex store.

PHENACETIN.—Makers' prices for ordinary quantities are firm at 3s. 6d. to 3s. 9d. per lb., and quotations are given without engagement. Little material is in dealers' hands, and prices are firm at from 5s. upwards per lb.

PHENAZONE.—Dealers' prices range from 17s. 6d. for bulk quantities up to 22s. per lb., for small parcels, ex store.

PHENOLPHTHALEIN.—Makers' prices are firm: Less than 7 lb., 3s. 8d.; 7 lb., 3s. 7d.; 14 lb., 3s. 6d.; 28 lb., 3s. 5d.; one cwt., 3s. 4d. per lb.

PHENYLETHYLBARBITURIC ACID (B.P.).—The spot market continues to be poorly supplied, and prices are firm at 35s. to 37s. 6d. per lb., in bottles.

PIPERAZINE.—The price for bulk quantities would be about 75s. per gd.; small lots, in 1-oz. bottles, 5s. 6d. to 6s. per oz.

POTASSIUM PERMANGANATE.—Makers' prices continue steady: B.P. quality in 1-cwt. drums: 1 cwt., 1s. 3½d.; 3 cwt., 1s. 3d.; 5 cwt., 1s. 2½d.; 1 ton, 1s. 2½d. In 5-cwt. drums: 5 cwt., 1s. 2½d.; 1 ton, 1s. 2½d. Technical quality in 1-cwt. drums: 1 cwt., 1s. 3½d.; 3 cwt., 1s. 3d.; 5 cwt., 1s. 3d.; 1 ton, 1s. 3d. Packing in 5-cwt. drums: 5 cwt., 1s. 3d.; 1 ton, 1s. Terms net, delivered, drums free. Dealers' prices are at higher figures.

QUININE SALTS.—Prices for these salts are firm: SULPHATE, 10s. 9d. Dutch florins; HYDROCHLORIDE, 13s. 25; BIHYDROCHLORIDE, 14s. 75; ETHYL CARBONATE, 13s. 50 per 100 oz., f.o.b. Holland. 100-oz. tins free; smaller packages extra. At these figures it is estimated that the cost in sterling of SULPHATE would be fully 3s. per oz., landed.

RESORCIN.—Makers' prices are firm, as follows: One cwt., 6s. 5d.; 56 lb., 6s. 6d.; 28 lb., 6s. 7d.; 14 lb., 6s. 9d.; 7 lb., 7s.; smaller quantities, up to 7s. 6d. per lb.

ROCHELLE SALTS.—Makers' prices continue firm at the recent advance.—SODIUM POTASSIUM TARTRATE, B.P., powder, less than one cwt., 9os. per cwt.; less than five cwt., 87s. 6d.; not less than five cwt. in one delivery, 85s. per cwt.; crystals, 2s. 6d. per cwt. extra. PULV. SEIDLITZ, less than one cwt., 71s. 9d.; less than five cwt., 70s.; not less than five cwt. in one delivery, 68s. per cwt. DOUBLE SEIDLITZ, less than one cwt., 79s. 6d.; less than five cwt., 77s. 6d.; not less than five cwt. in one delivery, 75s. 3d. per cwt., net, fourteen days; contracts subject to rise-and-fall clause.

SACCHARIN.—The duty-paid Convention price for 550 material is firm at 98s. 4d. per lb. There has been a sharp increase in demand.

SANTONIN.—Convention prices continue to be quoted unchanged. The scale is as follows: 15 kilo and over, £35 10s.; not less than 10 kilo, £36 5s.; not less than 5 kilo, £37; less than 5 kilo, £38 per kilo, delivered free in the U.K., 1-kilo tins free. Quotations for spot parcels are in the region of £37 to £38 per kilo.

SODIUM SALICYLATE (B.P.).—Makers' scales of prices are as follows:—

In containers of	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
Under 4 lb. ..	s. d.	s. d.				
4 lb. and under 7 lb. ..	2 9	2 7½	—	—	—	—
7 lb. and under 14 lb. ..	2 8	2 6½	2 6½	—	—	—
14 lb. and under 28 lb. ..	2 7	2 5½	2 5½	2 4½	2 3½	2 3½
28 lb. and under 1 cwt. ..	2 6	2 4½	2 4½	2 3½	2 2½	2 2
1 cwt. and under 5 cwt. ..	2 5	2 3½	2 3½	2 2½	2 1½	2 1
5 cwt. and under 1 ton ..	2 0	1 10½	1 10½	1 9½	1 9½	1 9½
1 ton	1 1½	1 10	1 9½	1 8½	1 8½	1 8

* 8 × 14 lb. and upwards, in one delivery, ½d. lb. less.

Prices include parcels or collapsible cartons; other packages charged extra. Sodium salicylate cannot be assorted with salicylic acid. Prices are quoted subject to an undertaking on part of buyer not to re-sell any quantities of above product at prices or terms below scale for such quantities current at time re-sale is made.

SODIUM BARBITONE.—Dealers' prices are: One cwt., 23s. 6d.; 28 lb., 24s. 6d.; smaller quantities, 28s. per lb., ex store.

SODIUM BENZOATE (B.P.).—Demand continues on moderate lines; with makers' and dealers' prices steady at 1s. 8½d. for bulk quantities, up to 2s. per lb., for small parcels.

SULPHONAL.—Dealers have small spot supplies, for which the value at present is 35s. per lb., ex store.

TANNIC ACID (B.P., LEVISS).—Spot supplies scarce and firmly held, demand small. Any spot material available is quoted at from 6s. 9d. to 7s. per lb., as to quantity and seller.

TARTARIC ACID (B.P. CRYSTALS).—Makers advise their quotation, which continues nominal, is 1s. 5½d. per lb., less 5 per cent. discount. Supplies are limited and reserved for regular consumer customers. Dealers have practically nothing to offer; values are nominal.

VANILLIN.—Makers' prices are firm. The scale is as follows: Ex clove oil or guaiacum, five cwt., 14s.; one cwt., 14s. 1½d.; 56 lb., 14s. 3d.; less than 56 lb., 14s. 6d. per lb., carriage paid in the United Kingdom.

VERMILION.—Controlled prices are as follows:—

Over 7 lb. but not more than 30 lb.	Over 30 lb. and less than 1 cwt.	1 cwt. and over but less than 5 cwt.	5 cwt. and over but less than 10 cwt.	10 cwt. and over but less than 20 cwt.	20 cwt. and over
8s. 5d.	8s. 4d.	8s. 3d.	8s. 2d.	8s. 1d.	8s. od.

Carriage paid United Kingdom, packing free; net cash fourteen days.

Crude Drugs, etc.

A STEADY flow of business is recorded, with the tone fully steady. Further advances in prices of some commodities are noted. Shipment conditions generally are difficult, and point to further increases.

ACONITE ROOT.—Dealers are offering small spot parcels of *Napellus* at 110s. to 112s. 6d. per cwt., ex store.

AGAR.—Conditions in this product show little change on the week. There are some odd bales on spot for which about 8s. 3d. is wanted for Kobe No. 1, and 7s. 10 $\frac{1}{2}$ d. for Kobe No. 2; Yokohama No. 1, 7s. 9d. per lb., ex store, duty paid. Japanese shippers' quotations are still at high figures and consequently business has been negligible; they quote: Kobe No. 1, February–March, 6s. 1d. to 6s. 3d.; Kobe No. 2, 5s. 10 $\frac{1}{2}$ d. to 6s., and Yokohama No. 1, 5s. 9d. c.i.f., while there are re-sellers of Kobe No. 1, at 5s. 9d. to 5s. 10 $\frac{1}{2}$ d.; Kobe No. 2, 5s. 6d., and Yokohama No. 1, 5s. 5d. per lb., c.i.f., February–March shipment.

ALOES.—Shippers of Curaçao at the source state there is still nothing to offer. New York continues to offer at 260s. per cwt., c.i.f., and some business is reported. Spot: Curaçao, very scarce and held for 290s. to 300s. per cwt., c.i.f. Cape, steady and moving quietly; spot, 57s. 6d. to 60s. per cwt.; Zanzibar, in leaves, 80s. to 90s. per cwt., ex store.

CAMPHOR.—The only business of any importance moving on the spot market is in synthetic powder and tablets, for which 4s. 10d. to 4s. 11d. and 5s. 6d., respectively, are now being quoted. There are odd lots of Japanese slabs at about 4s. 9d. per lb., duty paid. Japanese shippers are only able to offer limited supplies of tablets for February shipment at 4s. 10 $\frac{1}{2}$ d. per lb., c.i.f. Slabs and powder not quoted. Importers are not likely to be much interested in Japanese shippers' prices at anywhere near the recent figures, while the Continental synthetic material is selling at much lower values. This source will, however, eventually dry up. British refined: Flowers, one cwt., 4s. 7d.; 28 lb., 4s. 8d.; smaller quantities, 4s. 9d. per lb.; transparent tablets, 4-oz., and 8-oz., and 16-oz., 4s. 10d.; 1-oz. and 2-oz., 4s. 11d.; 2-oz., 3-oz., and 4-oz., 5s. per lb.

CARDAMOMS.—Market is steady, business quiet: Bleached prices are nominal on account of bare market. Ceylon, bleached, bold, 5s.; medium pale, 3s. 9d. to 4s.; small, 3s. 6d.; Bombay seed, 4s. 6d. per lb.; Mangalore seed, 4s. 3d.; Aleppy greens, spot, 3s. 3d. to 3s. 4d.; shipment, 2s. 6d., c.i.f.

CASCARA SAGRADA.—A good volume of business continues in this article, with 1938 peal selling at fully 100s. per cwt. and 1939 (if available) at 97s. 6d. per cwt., ex store. Some Canadian bark, just shipped, is offered at 92s. 6d. per cwt., landed, duty free. Shipment offers from the source are at 85s. per cwt., c.i.f., in minimum car-load lots, and shippers report that higher prices are anticipated.

CLOVES.—Market has been dull and is again quoted slightly easier: Zanzibar, spot, 1s. per lb.; shipment, January–February, 8 $\frac{1}{2}$ d., c.i.f. Madagascar, quotations nominal, 1s. per lb., in bond; shipment, January–February, 9 $\frac{1}{2}$ d. per lb., c.i.f.

COCONUT (DESICCATED).—Values show a further decline, with the market quiet: Spot, fine, 33s.; medium, 34s.; afloat, 29s.; shipment, halves, January–February, 29s. per cwt., c.i.f.

COD LIVER OIL.—British-made medicinal quality oil is reported by the producers to be available, bulk quantities being at 8s. per gallon, in drums, delivered. Veterinary-grade oil is also available in drums, tins, and bottles. Norwegian: Advice has been received in London that the opening Lofoten fishing has been poor and, as a result, the shipment market is firmer, though no definite figure is being quoted. On spot, Lofoten steam-refined medicinal oil is now quoted at about 10s. 6d. to 11s. per gallon, duty paid.

ERGOT.—A limited quantity of Portuguese root is stated to be available in London, for which 22s. per lb., ex store, is wanted. A small supply of Hungarian is also offering here at 13s. 6d. per lb., ex store. Importers report they are unable to obtain definite shipment offers from any sources.

GENTIAN.—The firmer tone recently reported is maintained, with the lowest offer of small parcels now at about 52s. 6d. per cwt., ex store.

GUM ACACIA.—Values rather easier, market quiet: Spot, Kordofan cleaned sorts, 68s. 6d.; shipment, new crop, 54s. to 55s. per cwt., c.i.f.

HONEY.—Business has been quite active; supplies are generally short. Prices have advanced and the market closes firm: Jamaican, 85s. to 95s. per cwt., as to quality and quantity. Canadian, again dearer at up to 85s. per cwt., ex store.

IODINE.—Crude iodine advanced ninepence per kilo last week, making the current price 15s. 9d. per kilo.

HYDRASTIS.—Shipment quotations have advanced to 19s. 3d. per lb., c.i.f. Spot is also dearer; good-test root, 21s.; U.S.P., 19s. 9d. per lb., ex store.

IPECACUANHA.—On account of the scarcity of supplies of Matto Grosso it is difficult to define the value, but any fair to good-test root is likely to be not less than 23s. to 24s. per lb., and one source states figures above these have been paid. There are no shipment offers from the source. In due course there may be one or two re-sellers of January–February shipment, but so far, no price is indicated. Limited supplies of Minas on spot at 12s. 6d. to 12s. 9d. per lb.; shipment, 10s. 9d. to 11s. per lb., f.o.b. Brazilian port. Bahia, about 2 per cent., 16s., spot; shipment, 12s. 6d. per lb., c.i.f. **EXT. IPECAC.**—On account of further

advances in the price of raw materials, makers have had to increase their minimum price to 27s. 6d. per lb.

KOLA NUTS.—West Indian halves offering on spot at 4d. to 4 $\frac{1}{2}$ d. per lb., ex store. Small inquiry.

MENTHOL.—A fair trade is moving, but most of the business continues to be in the Chinese material. Japanese shippers' cables quote K/S brands at from 20s. 10d. to 21s. 3d. per lb., c.i.f., but these offers attract no business. On spot, K/S is valued at 20s. duty paid, and New York has offered shipments at 17s., c.i.f., with business reported at this figure. Chinese is selling well at 15s. 6d. to 16s. per lb., ex store, duty paid; shipment prices are dearer; near afloat, re-sellers at 13s. 6d., c.i.f., and February–March from the source at 13s. per lb., c.i.f.

MERCURY.—The shipment quotation for Spanish–Italian metal continues unchanged at 150 dollars per bottle, f.o.b. Mediterranean port. No c.i.f. or "ex store, London" quotations.

ORRIS ROOT.—Firm at recent advance, with fair Florentine sorts quoted at about 70s. per cwt., ex store.

PEPPER.—Fractionally easier on a quiet market: Lampung, in bond, 4 $\frac{1}{2}$ d.; afloat, 3 $\frac{1}{2}$ d. per lb., c.i.f. Tellicherry, spot, 38s. 6d. Aleppy, January–February, 38s. 6d. per cwt., c.i.f. White Muntok, duty paid, 6 $\frac{1}{2}$ d.; in bond, 6d.; afloat, 4 $\frac{1}{2}$ d.; January–February, 4 $\frac{1}{2}$ d. per lb., c.i.f.

PIMENTO.—The recent firmer tone has not been fully maintained, closing dull: Spot 11 $\frac{1}{2}$ d. per lb.; shipment, January, 90s. per cwt., c.i.f.

RHUBARB.—A moderate sale, with spot values of the limited selection of goods firm and tending rather dearer. Spot, Shensi, now up to 6s. 3d. per lb., for bold to medium round, ex store, duty paid. Rough-round, slightly wormy, 4s. per lb.; good quality, firm at 4s. 6d. per lb., ex store. Occasional shipment offers of rough-round from this source at 3s. 9d. per lb., c.i.f.

RUBBER.—Values show a sharp advance on the week, business very fair, closing firm: Standard ribbed smoked sheet, spot, 12 $\frac{1}{2}$ d.; March, 12d.; April–June, 11 $\frac{1}{2}$ d.; July–September, 11 $\frac{1}{2}$ d. per lb.

SEEDS.—**ANISE.**—Spot, duty paid, Spanish, 105s.; Cyprus, 82s. 6d.; Bulgarian, 75s. **CANARY.**—No prices quoted. **CARAWAY.**—Spot, duty paid, Dutch, 85s. **CORIANDER.**—Spot, Morocco, offered at 28s. duty paid, and 26s. in bond. For shipment, January–February, 21s. 6d., c.i.f., quoted. **CUMIN.**—Spot, Cyprus, 75s., duty free, Morocco, 85s., ex store Liverpool and London. Malta, all sold on spot; 84s., c.i.f., quoted for shipment by first available steamer. **DILL.**—Spot, Indian, 37s. 6d. **FENNEL.**—Spot, Indian, 55s.; Iran, 55s., in bond. **FENUGREEK.**—Spot, Morocco, 21s. 6d., duty paid lying in London, and 20s. 6d., ex store Liverpool. **MUSTARD.**—English, 52s. to 55s., according to quality.

SENEGA.—Little doing on the London Market, with sellers at 4s. 7 $\frac{1}{2}$ d. to 4s. 9d. per lb., for fair qualities, ex store. Shipment offers from the source at from 4s. 2d. up to 4s. 3d. per lb., c.i.f., but practically no business moving.

Senna.—London quotations are steady at last week's slightly dearer rates: Spot quotations are as follows: Tinnevelly leaves: No. 1, 8 $\frac{1}{2}$ d.; No. 2, 5 $\frac{1}{2}$ d.; No. 3, 4 $\frac{1}{2}$ d. per lb. Tinnevelly pods: best pale hand-picked, 4d.; darker grades, 5 $\frac{1}{2}$ d.–6 $\frac{1}{2}$ d.; f.a.q., 4 $\frac{1}{2}$ d. per lb. Alexandrian pods: The market is poorly supplied with good green bold hand-picked, and prices are nominal. Manufacturing quality, 7d. per lb., ex wharf, London.

SHELLAC.—Following the recent sharp advances, the market has weakened, closing dull. Spot: standard TN orange, 83s. 6d. to 86s. 6d.; pure button, 132s. 6d.; fine orange, 140s. to 170s. per cwt. For arrival, TN orange, 81s. per cwt., c.i.f.

TONKA BEANS.—Little interest in this product. Fair frosted Para beans, 2s. to 2s. 3d., as to quantity. Angostura, 9s. per lb., ex store.

TURMERIC.—Spot, Madras finger, sold at from 50s. to 52s. 6d. per cwt.; Rajapore quoted at 53s. per cwt., ex store. Shipment, January–February, Madras finger, 40s., c.i.f.; Rajapore, 40s. 6d. per cwt., c.i.f.

VANILLOES.—There was good competition for the 155 tins of Seychelles beans at the Mincing Lane auction, with prices advancing as the sale progressed:—

	in.	per lb.
First or good second, slightly crystallised, fair flavour	6 × 7 $\frac{1}{2}$	24s. 6d.
	3 $\frac{1}{2}$ × 6	24s.
	7 $\frac{1}{2}$ × 8	27s. 6d.
First, fair, slightly crystallised, fair flavour	7 $\frac{1}{2}$	26s. 6d.
	7 × 7 $\frac{1}{2}$	26s. to 29s.
	6 $\frac{1}{2}$ × 7	27s.
	6 $\frac{1}{2}$	25s. to 28s. 6d.
	5 $\frac{1}{2}$ × 6	26s. to 29s.
	5 × 5 $\frac{1}{2}$	25s. to 26s.
"Splits," fair brownish to first	3 $\frac{1}{2}$ × 4 $\frac{1}{2}$	24s. to 27s.
"Splits," dry foxy		23s. to 25s. 6d.
		21s. to 24s.

WAXES.—**BEES'**: Supplies continue short and are quoted at full prices. Spot, from 185s. upwards; in bond, 170s.; shipment, Dar-es-Salaam, 177s. 6d. per cwt., c.i.f. Japanese, first three brands, now landing, 125s. per cwt., ex wharf. **CARNAUBA:** Shipment quotations are slightly easier: Fatty grey, 340s. and in small supply; chalky grey, 330s. per cwt., ex store. Shipment: January, fatty grey, 280s., c.i.f.; Primeira, shipment, February–March, 300s. per cwt., c.i.f.

Essential and Expressed Oils, etc.

RATHER quiet conditions are reported in this market. A number of price changes are recorded, including some further advances. More attention is being paid to offers of new-crop Sicilian lemon. Japanese shippers' prices for peppermint remain at high figures.

ALMOND.—Rather more interest, values tending firmer: Spot, cwt., lots, 3s. 9d.; smaller quantities, up to 4s. 3d. per lb., ex store. French, genuine bitter, short and firm at 1os. 6d. per lb., ex store.

ANISE (STAR).—Very quiet, with spot and forward prices unchanged, but rather easy: Spot, tins in cases, 4s. 6d.; drums, 4s. 3d. per lb., ex store; shipment, January–February, tins in cases, 3s. 8d.; drums, 3s. 6½d. per lb., c.i.f.

AVOCADO PEAR.—Importers' prices are maintained at about 52s. 6d. per gallon, in tins; business is of small account.

BERGAMOT.—The Consortium shipment quotation for new-crop oil is steady at the opening price of 2os. per lb., f.o.b. Messina, in tins in cases; small inquiry on the market. The limited spot supply of original oil is valued at 22s. to 23s. 6d. per lb., ex store, as to quantity.

CARAWAY.—Values are rather dearer on the week, owing to a stronger shipment position: the spot price for Dutch rectified oil continues firm at 15s. 4½d. to 15s. 6d. per lb., landed and duty paid; shipment at 15s. per lb., duty paid.

CASSIA.—Quiet on spot, but the little good quality oil to be had is firm at rather higher figures; shipment offers dearer: Spot, 4s. 10½d. to 5s. per lb., ex store. Shipment: an offer of cases at 4s. 10½d. to 5s. and drums at 4s. 9d. per lb., c.i.f., is reported.

CITRONELLA.—Market has been dull and values are easier: Ceylon, spot, drums, 2s. 6d.; smaller quantities up to 3s. per lb.; shipment, drums, about 2s. per lb., c.i.f. Java, spot, drums, 2s. 10d.; smaller quantities, up to 3s. 6d. per lb.; shipment easy at about 2s. per lb., c.i.f.

CLOVE.—Fair trade passing, and prices fully steady: Madagascar, spot, drums, if available, 4s. 6d. per lb.; smaller parcels, up to 5s.; English distilled, firm at 7s. to 7s. 3d. per lb., as to quantity.

COCONUT.—The controlled price issued by the Ministry of Food for refined deodorised is £25 7s. 6d., and for refined hardened deodorised, £29 17s. 6d. per ton, naked ex works. These prices refer to large bulk quantities and will continue to operate until February 3. Distributors' prices for a few cwt., packed and carriage paid, would be at much higher figures.

EUCALYPTUS.—The London market seems to be practically bare of bulk supplies and only odd lots are noted. Fair quantities have arrived since the New Year but these consignments were already booked. Prices are firm at 4s. 6d. (paid) up to 5s. 3d., as to holder, for 70 to 75 per cent. oil. Shippers are quoting February–March only, and then in restricted quantities; their prices are firm at 2s. 6d. per lb., c.i.f.

LAVENDER.—A slack market is reported and the easier tone noted last week continues: French 38 to 40 per cent. oil possibly easier at 18s. to 19s. 6d. per lb., as to quality and quantity. LAVANDIN continues firm at 10s. 6d. to 11s. per lb., ex store.

LEMON.—Shipment quotations for new-crop Sicilian, standard quality oil, range from 13s. to 13s. 6d. per lb., c.i.f., in tins in cases. A fair inquiry is reported on the market. Spot oil of good quality would be at about 16s. 9d. to 17s. per lb., ex store, and less for blended oils. Californian oil, cold-pressed, quoted in sterling, and slightly dearer at 13s. 7½d., at wharf; distilled, regular quality, 8s. per lb., at wharf, with the demand fair.

LEMONGRASS.—Market remains quiet, with values rather easy: Spot, from 4s. 6d. to 4s. 7½d. as to quantity, ex store; shipment quotations are at about 4s. per lb., c.i.f.

LIME.—Market quiet, values unchanged: West Indian distilled, 17s. to 17s. 6d. per lb., ex store.

MUSK.—Tonquin is now quoted 8os. per oz., c.i.f. This would make the "ex store" price close up to 90s. per oz.

ORANGE.—Shipment quotations for new-crop French Guinea oil seem to be rather easier, ranging from 3s. 1½d. to 3s. 4½d. per lb., c.i.f. in drums. So far, business is stated to be disappointing. Spot values are nominally unchanged, with drums at 5s. 6d. and oil re-packed in tins at up to 6s. per lb., ex store. Californian oil is quoted in sterling slightly dearer at 4s. per lb., in small drums, ex store, duty paid, limited supplies only available.

PALMAROSA.—Market is firm. Shipment values are again dearer, spot supplies are limited. Spot, 12s. 3d. to 12s. 6d. per lb., ex store; shipment, 10s. 10½d. per lb., c.i.f., with few offers being made at the source.

PATCHOULI.—Singapore oil is nominal at 30s. per lb. on spot, but it is difficult to locate supplies; no shipment offers. Seychelles, firm and dearer at from 22s. per lb. Java oil, for shipment, is offered at the high figure of 30s. per lb., c.i.f.

PEPPERMINT.—Spot supplies of Japanese oil are short, and held for 7s. 3d. per lb., ex store; shippers are quoting at high figures in the region of 7s. 9d. to 8s. 3d., c.i.f., as to brand and shipper. Chinese is selling freely at 5s. 6d. per lb., ex store; shipment offers from this source are dearer at 4s. 8d. to 5s. per lb., c.i.f., as to shipper. American natural oil is steady but quiet, and is quoted at from 2 dollars 90 cents to 3 dollars 5 cents per lb., c.i.f., in tins in cases. Spot, 16s. to 16s. 3d. per lb., ex store.

ROSE.—Bulgarian Co-operative Bank reports that prices have been advanced 20 per cent., which would bring the price up to about £65 per kilo, c.i.f., excluding war-risks insurance.

ROSEMARY.—Tunis oil is quoted unchanged, with the demand quiet: the value is at about 3s. 3½d. to 3s. 6d. per lb., ex store. Spanish oil is offering at 3s. 9d. to 4s. per lb., as to quantity, ex store.

SASSAFRAS.—Dealers' prices are steady, market quiet; good quality genuine oil, 8s. to 8s. 6d. per lb., as to quantity.

SPEARMINT.—Market has been dull, quoted unchanged: Spot, U.S.P., 13s. 3d.; shipment, 11s. 9d. per lb., c.i.f.

SPIKE.—Good-quality Spanish oil is steady as quoted at 7s. 6d. to 8s. per lb., ex store. Other grades are at lower figures. Business small.

TI-TREE.—Importers continue to offer spot supplies of this Australian oil at about 52s. 6d. per gallon, in tins.

TURPENTINE (AMERICAN).—Market is not controlled and quotations are easier: London, 57s. per cwt., tax paid, in barrels, ex wharf; Liverpool, 61s. 6d. in barrels, ex store.

VETIVERT.—Values are fully maintained: Bourbon, spot, 24s. 6d. to 25s.; shipment, 22s. 4½d. per lb., c.i.f.

WORMSEED.—A further sharp advance in values is recorded, with shipment offers restricted and firm at 10s. per lb., c.i.f. Spot quotations for branded oils are now at 10s. 6d. to 10s. 9d. per lb., ex store.

World Mineral Industries

No. 2—Arsenic

THE following details of world production of arsenic are taken from the statistical summary, 1936–1938, of the mineral industry of the British Empire and foreign countries, issued by the Imperial Institute, London, S.W. Figures are in long tons.

Producing country and description	1936	1937	1938
BRITISH EMPIRE			
United Kingdom:—			
White arsenic and arsenic soot ..	153	95	65
Southern Rhodesia:—			
White arsenic	—	—	19
Canada (sales):—			
White arsenic	610	620	971
Australia:—			
White arsenic	3,691	3,387	3,999
FOREIGN COUNTRIES			
Belgium (exports):—			
White arsenic	2,688	2,991	2,664
Czechoslovakia:—			
Antimony ore (as content) ..	53	30	(a)
France:—			
Ore (as content)	9,490	3,909	(a)
White arsenic (as content)	7,104	(a)	(a)
Germany:—			
Ore (as content)	1,843	(a)	(a)
Greece:—			
White arsenic	84	230	(a)
Pyrites (as content)	770	750	(a)
Italy:—			
Ore	148	15,826	17,976
White arsenic	—	—	797
Portugal:—			
Pyrites (as content)	74	—	—
White arsenic	148	21	1
Rumania:—			
Pyrites (as content)	30	32	33
Sweden:—			
Ore (as content)	22,944	20,623	21,141
White arsenic	8,510	(a)	(a)
Mexico:—			
White arsenic	8,392	10,592	8,754
United States:—			
White arsenic	13,731	15,013	14,897
Brazil:—			
White arsenic	720	705	512
Japan:—			
White arsenic	2,587	(a)	(a)
Korea:—			
White arsenic	226	(a)	(a)
Turkey:—			
Ore	16	27	25

White arsenic is also produced in Germany, U.S.S.R., and China.

(a) Information not available.

Correspondence

Correspondents may adopt an assumed name, but must in all cases furnish their real name and address to the Editor

Pharmaceutical Society's Examinations

SIR.—In the *C. & D.*, January 20, p. 47, you seek to learn the reasons for so many failures, and, in so far as the Preliminary Scientific is concerned, I do not believe that one has to look far. I suggest that those who comprise the 60·8 per cent. failures have not had the opportunity of a public school education, where physics, chemistry and biology are taught and, until the educational authorities decide to have these subjects taught at all schools, I fear the percentage of failures will not diminish. The blame, therefore, does not appear to rest upon the Pharmaceutical Society and still less upon the students. The pre-medical examination in these subjects is known to have been taken at school, although it is certain that the standard in chemistry is lower. It would, indeed, be interesting to know how many of the failures had been taught chemistry, physics and biology whilst at school. Very few, if any, I guess.—Yours faithfully,

London, E.11.

L. MATTHEWS.

Doctors' Ideas of Prices

SIR.—Mr. L. F. Addy in his letter relating to the "Price of Dressings" (*C. & D.*, Jan. 20, p. 43) shows us once more the way in which chemists may be accused unjustly of charging excessive prices for goods, merely because of a lack of knowledge of the true position of rising costs. Whatever may have been the cause of the misunderstanding in the particular case he quotes, there is in ordinary times a sad tendency among doctors in occasional cases to under-estimate the price of drugs and appliances, especially when they are recommending their patients to obtain something from the chemist which they do not supply themselves. It is bad enough in peace-time to have to listen to customers who argue about the price of some preparation or article on the ground that their doctor told them it would only cost a few pence, but if added to this they are to be advised there is no justification for an increase over pre-war rates, then there should be some protest made in the proper quarters on behalf of pharmacists, who for their part do not attempt to tell their customers what a doctor's fee should be. "Business Man," writing about the Order issued under the Prices of Goods Act, refers to increases in overhead charges as well as rises in invoice prices. In many of the cases brought under the Profiteering Act, of the last war, some members of the tribunals, who I suspect had had no practical experience of retail business, overlooked the necessity for considering both these factors when fixing retail prices. The idea apparently was that if the wholesale cost to the retailer went up by a certain sum, then that amount was all that should have been added to the selling price. No consideration was taken of the fact that the retailer also had increased overhead charges.—Yours faithfully,

MEL BORACIS (21/1).

Cod Liver Oil Statistics

SIR.—In my recent letter re exports of British cod liver oil to the United States I mentioned that to avoid confusing the issue I was dealing with the figures relative to medicinal cod liver oil only. The apparent discrepancy referred to by your correspondent in the letter which appears in your issue of January 20 (p. 43) had not escaped my notice but the explanation is a very simple one. Under the general total are included various concentrates sold at very high prices. This, of course, makes the average price per gallon appear higher than that for the medicinal grade. Although the point raised by your correspondent may serve to cloud the issue, it does not alter the fact that the statistics, which have been quoted and tacitly admitted to be correct, show very conclusively that consumers of cod liver oil in Great Britain, because of the imposition of the duty on imported oil, have been compelled to pay a price considerably higher than that at which the same oil was being sold by British manufacturers when exported to the U.S.A. In times like the present, it is in the national interest that the price of a commodity of such high nutritional value as cod liver oil should not be inflated unduly. The existing shortage and resulting high price are both purely artificial and both could easily be relieved if supplies of Norwegian oil were allowed to enter the country duty free.—Yours faithfully,

for SOUTHALL BROS. & BARCLAY, LTD.,

Birmingham.

ALBERT T. HALL, Director.

[This correspondence is now closed—EDITOR.]

Miscellaneous Inquiries

We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them

B. E. B. (6/12).—DEBT RECOVERY.—The best way is to write to your customer informing him that unless the account is settled within a week you will commence proceedings in the County Court. If he ignores your letter, do not waste time in writing to him again, but commence proceedings in the County Court. If your customer resides in the district of the Court, all you need do is to attend the County Court office, inform the clerk of the nature of your visit, and give him your name, address and occupation, and also that of the debtor and the amount of your claim, and he will make out for you the necessary praecipe, which you will have to sign. There will be a small fee payable, called a plaint fee, the amount of which in all cases is based on the amount of the claim, which, of course, in the long run will have to be paid by the defendant. The case is then, from your point of view, finished with, until the day of the hearing, which date will be seen from the plaint note. On the day of hearing you will attend the Court with your books and prove your claim, and an order will be made by the judge either for payment forthwith or by instalments; you afterwards attend the Court and draw the amounts paid in.

C. W. (16/1).—CAMPHOR ICE.—The following is taken from "Pharmaceutical Formulas," Vol. II:—

Camphor, powdered	..	..	..	60 gm.
Spermaceti	..	..	..	460 gm.
Expressed oil of almond	..	..	..	240 c.c.
White wax	..	..	..	240 gm.

A. Y. (6/12).—SCOURING POWDER FOR WOOD.—For cleaning wood which has become covered with dirt the most suitable scouring powder is a mixture of silica flour and soap powder. The proportions may be varied to suit local circumstances, but four parts of silica flour to one part of soap (by weight) is usually satisfactory. A convenient formula for the powder, taken from "Pharmaceutical Formulas," Vol. II, is as follows:—

Yellow soap	..	..	..	6 lb.
Washing soda	..	..	..	3 lb.
Soft soap	..	..	..	2 lb.
Silica flour	..	..	..	32 lb.

J. C. (11/6).—DRYING OFF COWS.—A concentrated lotion which may be used consists of liq. plumb. fort. 1½ oz. This should be diluted to a pint of distilled or rain water, and half this quantity should be rubbed into the udder after milking and again in three or four days' time. The milk in the meantime must not be used for consumption. Other necessary measures are feeding on dry foods with a minimum of water. Deep milking should not be carried out—a portion only of the milk should be taken once or twice daily, and less frequently as the quantity lessens. Details of drying-off mixtures for oral administration are given in "Veterinary Counter Practice." (*C. & D.* Office, 10s. 6d. post free.)

Retrospect of Fifty Years Ago

Reprinted from
"The Chemist and Druggist," January 25, 1890

The Pharmacopœia Addendum

We do not like Pharmacopœial addenda. At the best they are a stop-gap, and that useful purpose is now excellently fulfilled by the Unofficial Formulary of the British Pharmaceutical Conference. Could not the Medical Council give it a pat on the back? One gratifying feature of the present movement is that pharmacists are to be corporately represented in it, thus restoring the useful association of talent which was observed in 1864 and 1867. It was the Pharmaceutical Council's own fault that it had not a voice in compiling the 1885 Pharmacopœia; but now that the opportunity has again occurred to it, we believe the Council is to make amends for past neglect by appointing a small but talented committee of pharmacists who are practically engaged in the everyday work of pharmacy. So there is not likely to be any arm-chair work from that quarter. We take it that the Medical Council's Committee, which has charge of this matter, does not contemplate revising the Pharmacopœia now in force, simply to add to it. For that reason such suggestions as those made in a paper in our last issue regarding synonyms will not be considered. Synonyms, we have frequently stated, are the most dangerous additions we can have to the Pharmacopœia, since it has become recognised as an authoritative standard under the Sale of Foods and Drugs Act.

A SELECTION OF FAMILIAR PREPARATIONS

'AVERTIN'

(*basal anaesthetic*)

Supplemented by a small quantity of ether or gas-and-oxygen, 'Avertin' basal anaesthetic gives smooth anaesthesia and complete relaxation, followed by a peaceful recovery.

'CAMPOLON'

(*injectable liver*).

'Campolon,' a relatively crude liver extract, contains a number of chemically distinct "fractions." In the treatment of pernicious anaemia all these play their part in bringing about a satisfactory erythrocyte response.

'EVIPAN'-SODIUM

(*intravenous anaesthetic*).

Nearly six million operations have been performed under 'Evipan'-Sodium anaesthesia. It is safe, easily controlled, convenient to handle and can be used in the most difficult circumstances.

'PROMINAL'

(*barbiturate*)

'Prominal' is a specific anti-epileptic and antispasmodic of the 'Luminal' type, but with diminished hypnotic action. Under 'Prominal' treatment, patients are frequently able to continue in their normal occupations.

'SALYRGAN'

(*mercurial diuretic*)

'Salyrgan' is a well tolerated mercurial diuretic indicated chiefly in cardiac oedema. In severe cases it is given intravenously but suppositories are available for mild cases or where the needle is feared.

'ULERON'

(*chemotherapeutic*).

'Uleron' is a highly effective chemotherapeutic for the treatment of staphylococcal and gonococcal infections. Its low toxicity makes it of special value in debilitated cases —viz. prostatic disease.

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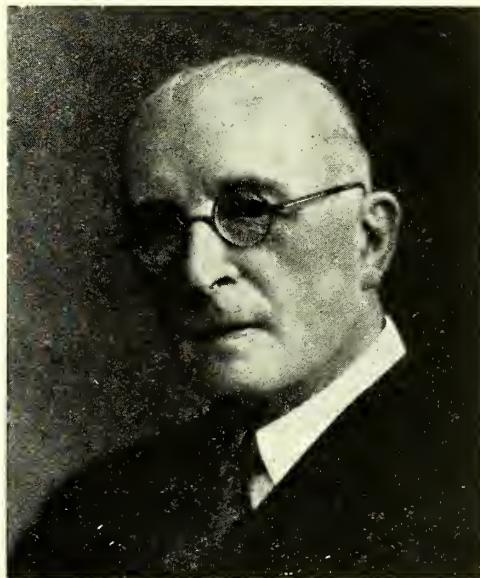
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A MESSAGE TO THE TRADE



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During my business career, I have seen many changes—the coming of the Typewriter, Telephone and Radio; Mechanical Road and Air Transport; the application of Chemistry and Physics to industrial processes; and perhaps more significant than any, the recognition by employers of their responsibility towards their workpeople and staff. I have seen, too, trade booms, industrial depression, financial crises and war.

At this moment the breakers loom as fierce and tumultuous as I have ever seen, but so close a view of an obstruction often makes it appear far more formidable than it really is. I am confident, therefore, that we shall finally weather the present storm, as we have weathered all others, though not perhaps without bruises.

And so my advice is, be as cheerful as usual, and approach the New Year with confidence and courage.

*Yours sincerely
Wm Bush*

ASH GROVE, HACKNEY, LONDON, E.8

January 27, 1940

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January 27, 1940

THE CHEMIST AND DRUGGIST
SUPPLEMENT

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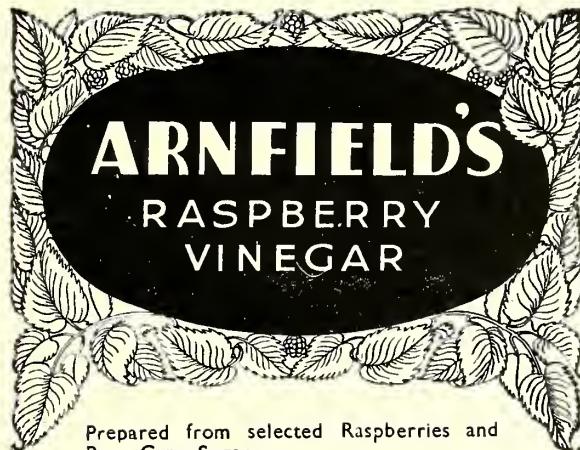
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January, 1940.

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THE CHESEBROUGH MFG. CO. CONS'D.

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have pleasure in advising their Wholesale and Retail friends that during 1940 the Company will again make newspaper advertising the chief medium of their promotional activity, substantially backed by topical appeals in the leading magazines, periodicals and trade press.

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RETAIL PRICES:—All regularly advertised lines such as 'Vaseline' Petroleum Jelly, 'Vaseline' Hair Tonic, and 'Vaseline' Soapless Shampoo remain the same.

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January 27, 1940



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Norway's largest exporters of Medicinal and Poultry Cod Liver Oil.



NOW is not too soon!

Better late than never, but NOW is not too soon to start selling Box's Pills.

They've been earning good profits for a steadily growing number of Pharmacists for over 50 years and could be doing so for YOU, TO-DAY.

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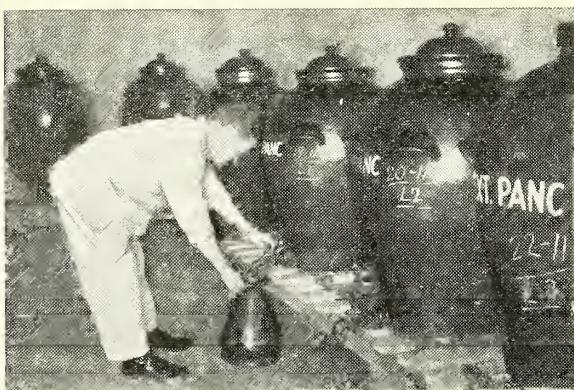
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**TELL YOUR CUSTOMERS
THIS ABOUT BENGERS'**

Tell your customers that Benger's Food contains pancreatic digestive enzymes, and that when the hot milk is poured on to the cold mixture—according to directions for making—the resulting temperature releases these enzymes for their work. This is partial digestion of both Food and milk. Tell them that Benger's is the only Food in the world which does this. Tell them it only takes as long to make as half a pint of milk takes to boil.



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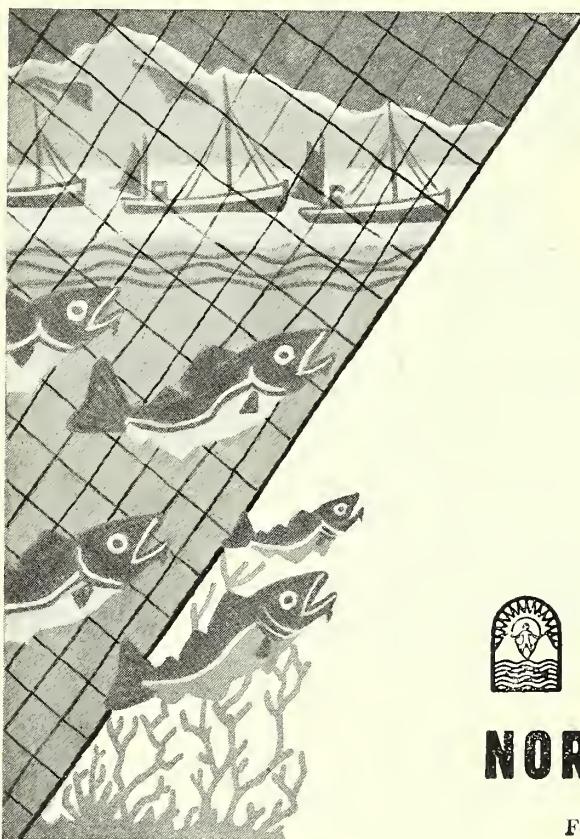


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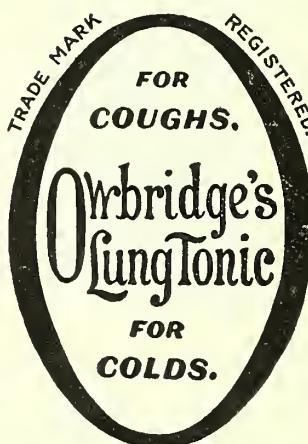
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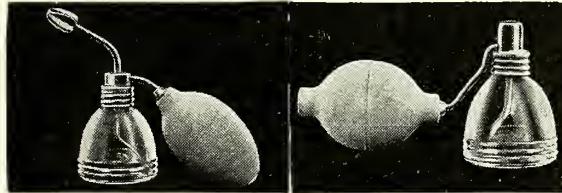
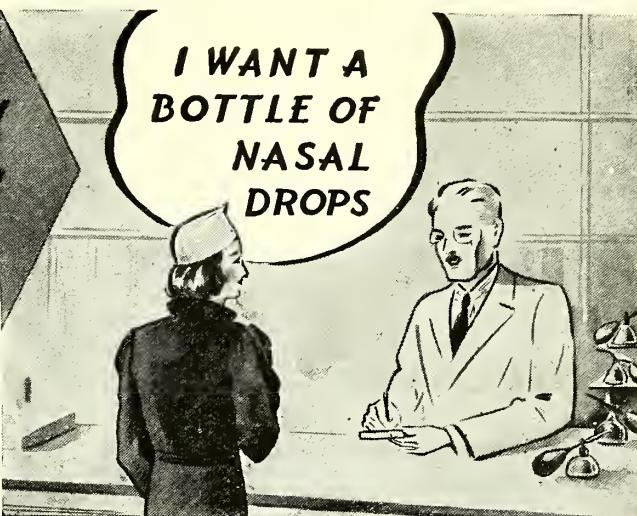
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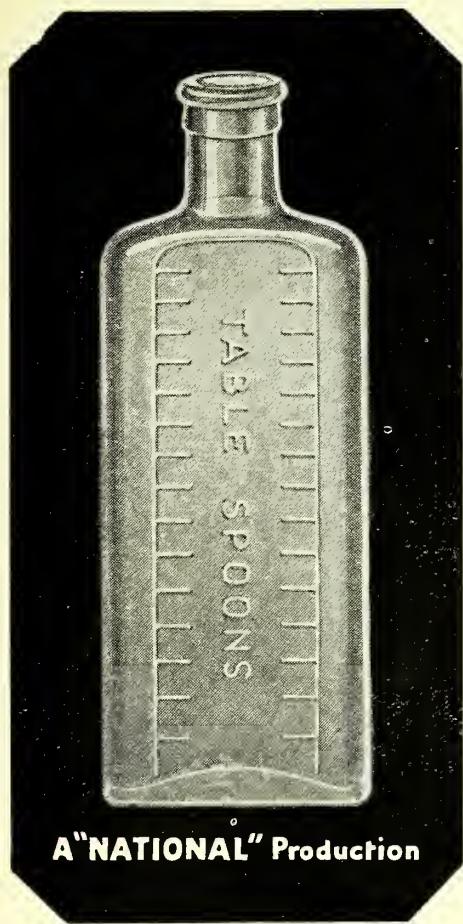
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IMPORTANT NOTICE TO SUBSCRIBERS CHANGES OF ADDRESS

During the period of the war it is important that notices of this nature should reach us not later than first post on the Monday morning prior to the issue which they are to affect.

Notifications should be sent to—

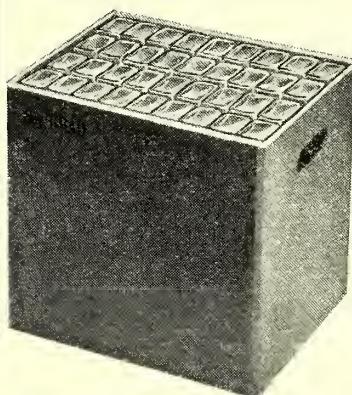
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THE CHEMIST & DRUGGIST
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The CHEMIST AND DRUGGIST

SUPPLEMENT

28 ESSEX STREET, LONDON, W.C.2

This Supplement is inserted in every copy of The Chemist & Druggist

JAN. 27
1940

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All advertisements in this Supplement must be prepaid

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NOTICE

SINGAPORE.—Junior Assistant for Medical Hall, Ltd. Will applicants for this post please note that their applications are under consideration, and a further notice re same will be inserted when the vacancy has been filled. M. K. Watt, M.P.S., 28 Esslemont Avenue, Aberdeen.

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A LONDON Organisation, established 1918, and equipped for manufacture of High-grade Perfumery, Cosmetics, General Toiletries and Pharmaceutical Preparations, is open to Home or Continental firms for making any product—bulk or packed—in large or small quantities where economy is desired for cost or reformulation to overcome present importation difficulties. Several leading proprietaries now enjoying universal distribution were reformulated and produced by our principal during last Great War. Strictest confidence maintained with all inquiries to C.H., 360/218, Office of this Paper.

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BRISTOL. Junior Assistant with initiative, Unqualified, for small dispensing business, knowledge of window display an advantage. Details to 185/4, Office of this Paper.

EPSOM. Unqualified Lady Assistant required for high-class Toilet trade. Dispensing experience essential. Apply stating age, experience, salary, and give references with photo if possible, to Pond & Maddison, 150 Golders Green Road, London, N.W.11.

LONDON, W.1. Wanted immediately, Junior Qualified Assistant (male) for dispensing business near Harley Street. Please give fullest particulars, including qualifications, experience, salary required, and when disengaged. 185/6, Office of this Paper.

FEMALE Assistant required, must have had pharmaceutical and general shop experience. Widows and single persons only considered. Apply in writing, stating age and experience, to the Staff Manager, Royal Arsenal Co-operative Society, Limited, 113 Powis Street, Woolwich, S.E. 18. Enclose envelope "Pharmacy." Note.—Canvassing of members of the General Committee or Officials will disqualify.

UNQUALIFIED Assistant required for good working-class business. Busy counter, N.H.I. and photographic. Permanency to right man. All details and references to Campion, 16 Lower Road, London, S.E. 16.

WHOLESALE

LEADING Manufacturers of nationally advertised products require the services of a first-class representative to develop their existing sales in South Wales, and the South-West of England. Applications are invited from gentlemen between 30 and 40 years of age, with established connection amongst chemists on the territory, and proved sales records. Reply (in confidence) giving full particulars of experience, age, salary required, and when available to 360/216, Office of this Paper.

PRODUCTION Progress Clerk (responsible position) wanted for advertising department. Knowledge of printing, print buying, proof reading, circularising routines, etc., essential. Some technical pharmaceutical knowledge an advantage. Write, stating age, experience, salary required, to Advertising Manager, Glaxo Laboratories, Ltd., Greenford, Middlesex.

REPRESENTATIVE for North England, old-established lines, good territory, commission basis. Only men with good reputation required. 360/215, Office of this Paper.

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REPRESENTATIVES required to carry ethical pharmaceuticals. Apply, Ethical Pharmaceuticals, 69 Cromwell Road, S.W.7.

REPRESENTATIVE, young, preferably qualified, required by Manufacturing House, for South Yorkshire, Lincolnshire, Nottinghamshire, Leicestershire, Northamptonshire; established connexion to hand over. Applicants must be in a position to provide their own car, give full particulars of their past experience, and state whether they have any connexion on the territory named. 359/199, Office of this Paper.

THE Spirella Company of Great Britain, Ltd., invite application from travellers (preferably middle-aged) already handling another branded line and making regular calls on chemists and druggists; attractive terms. Reply in confidence, in first instance, to Spirella, Men's Belt Department, Letchworth, Herts.

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WM. MARTINDALE requires representative for calling on chemists in London. Previous experience in a similar capacity essential. Excellent opportunity for the right man. Apply by letter only, giving full particulars of previous experience, salary expected, etc., to H. F. Stapley, 61 Welbeck Street, London, W.1.

SITUATIONS WANTED

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AS Chemist or Chemist Optician, registered O.B.A.C.; permanent or relief; middle aged; energetic; first class experience; disengaged due to war. Pharmacist, 49 Lydhurst Avenue, Streatham Hill, London, S.W.2.

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AS Qualified Superintendent; elderly, active; highest testimonials; moderate remuneration. M.P.S., "Park View," Potterdown Hill, Bournemouth.

BRISTOL PHARMACIST (25) desires situation. Tall, good appearance, experienced. Excellent references. Hospital or laboratory preferred. 15 Vicarage Road, Bristol 3.

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MANAGER or Superintendent in London district; elderly, but active and well recommended; strictly moderate salary. Apply, 184/2, Office of this Paper.

M.P.S. Dispenser-Book-keeper (Lady), Apothecaries' Hall, preferred. Requires post with chemist or doctor. Midlands preferred. Pharmacy experience. J. Martin, 4 New Queen Street, Chesterfield.

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QUALIFIED Manager (40), and Wife—both keen—require charge of live business. Living accommodation an advantage. 185/3, Office of this Paper.

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**BENEFITS : Trade Protection, Legal Aid, Unemployment Benefit,
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QUALIFIED Young Lady used to middle class trade; able to take charge; free now; South London preferred. "Rhubarb," 42 Warren Road, Banstead, Surrey.

QUALIFIED (26), desires Dispensing Position in a pharmacy or hospital. Free one week. London or Kent. 185/2, Office of this Paper.

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ACTIVE. Age 34, punctual, willing worker, seeks employment, manufacturing or chemical works. London or Maidstone district. Interview preferred. CDB/72, Office of this Paper.

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PHARMACIST, qualified, seeks representation of reputable house; Midlands preferred but not essential; aged 39. "Chemist," c/o Fereday & Sons, Bridgwater, Cannock, Staffs. Will provide car, if required.

REPRESENTATIVE, own car, covering Lancashire and Yorkshire. 20 years' experience, active, exceptional connexion. Well known to all best buyers wholesale and retail chemists, stores and Co-operative Societies. Salary, Commission and expenses. 185/14, Office of this Paper.

Late News

Chemists' Friends Association

MEETING of the Chemists' Friends Council was held at 4-5 Queen Square, London, W.C.1, on January 16, Mr. S. J. Stearn in the chair. The following were elected officers of the Chemists' Friends Association for the ensuing year: President, Mr. J. Stearn; Vice-President, Mr. I. V. L. Fergusson; Treasurer, F. R. Peck. The secretary presented his report as to the result of the election of wholesalers' representatives on the Chemists' Friends Council for 1940, which resulted in the return of the four previous representatives: May Roberts & Co., Ltd., Singers, Ltd., James Woolley, Sons & Co., Ltd., Joseph Brooks Co., Ltd.

The members of the propaganda committee were re-elected for the ensuing year with the exception of Colonel S. Watson (James Woolley, Sons & Co., Ltd.), who signified his desire not to stand for election to this subcommittee owing to the present difficulties of travelling to and from London and Manchester. Mr. E. C. Cripps (Allen & Hanburys, Ltd.) was elected to fill the vacancy. Applications from the following firms for inclusion in the C.F. List were accepted: Resufin, Ltd., 286 Corn Exchange, Chapel Street, Manchester, 4, and Cockburn & Co., Ltd., 130-140 Ward Street, Glasgow. An application was also accepted from Thomas McMullan & Co., Ltd., Belfast, for the addition of their name to the list of approved distributors by wholesale of F. goods.

The Council considered a policy of maintaining a definite minimum standard of profit on all lines for which future applications are received for inclusion in the C.F. List, but it was decided that no such definite standard be fixed for the time being, but that each application received from manufacturers be considered on its own merits. An intimation has been received from the Scottish Pharmaceutical Federation that the Scottish Committee of the Chemists' Friends Association will shortly be constituted in accordance with the rules of the Association, and the C.F. Council has given its approval to these arrangements. Two further manufacturers and twenty-two wholesalers were formally elected as members of the Association.

EXCHANGE COLUMN

FOR DISPOSAL

DISPENSING Counter, £3. Wall Case, 7 ft. x 8 ft. high (approx.), £2 10s. Smaller Wall Case (suitable for outside), £2, etc. Absolute bargains. 46 Bell Road, Hounslow. Phone 2072.

TRADE MARKS

The Trade Marks TERPOFLOR, Nos. 495693 and 497685; LENIPORME, Nos. 496796 and 497684; LENIFEDRINE, No. 58692; and TERPOFEDRINE, Nos. 583932 and 583933, registered in respect of Chemical substances, either prepared for use in medicine and pharmacy or used for agricultural, horticultural, veterinary and sanitary purposes, were assigned on the 27th October, 1939, by Albert Landrin, of 135 Boulevard Haussmann, Paris, France, to A.V.O.L. Laboratories, Ltd., of 74-77 White Lion Street, London, N.1, without the goodwill of the business in which they were then in use.

THE SUPPLY OF SUPPLEMENTS

Free copies of THE CHEMIST AND DRUGGIST SUPPLEMENT are available on Request. Stamped and addressed Post Office Wrappers should be sent to The Chemist and Druggist, c/o The Pitman Press, Bath, Somerset (not more than six at a time), and it should be noted that halfpenny stamps are now sufficient

LOOSE STAMPS WILL NOT BE ACCEPTED

Miscellaneous

SHOP HOURS.—In the House of Commons, on January 24, Sir John Anderson announced the intention of the Government that there should be a return to the normal hours for the closing of shops during the summer, and in all probability the date for the return would be fixed at about Easter time.

ALUMINIUM IMPORTS PROHIBITED.—At the request of the Ministry of Supply, the Board of Trade has issued an Order, The Import of Goods (Prohibition) (No. 3) Order, 1940, prohibiting, except under licence, the importation of aluminium and alloys containing more than 50 per cent. by weight of aluminium, other than machinery parts. The Order comes into force on February 1, but goods dispatched to the United Kingdom before that date will not require a licence. Applications for licences must be submitted in duplicate to the Aluminium Controller, Ministry of Supply, Raven Hotel, Shrewsbury, Shropshire.

Trade Report

CITRATES.—Makers' scales of re-sale prices have been revised. It is a condition of sale that buyers undertake not to re-sell any of the underlined products at prices below the values given, which came into operation on January 24.

POTASSIUM, B.P.

QUANTITY	In containers of					
	1 lb.	2 lb.	4 lb.	7 lb.	14 lb.	28 lb.
Under 4 lb.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
4 lb. and under 7 lb.	3 0	2 10 $\frac{1}{2}$	—	—	—	—
7 lb. and under 14 lb.	2 11	2 9 $\frac{1}{2}$	2 9 $\frac{1}{4}$	2 7 $\frac{1}{2}$	—	—
14 lb. and under 28 lb.	2 10	2 8 $\frac{1}{2}$	2 8 $\frac{1}{4}$	2 7 $\frac{1}{2}$	2 6 $\frac{1}{2}$	—
28 lb. and under 1 cwt.	2 9	2 7 $\frac{1}{2}$	2 7 $\frac{1}{4}$	2 6 $\frac{1}{2}$	2 5 $\frac{1}{2}$	2 5

28-lb. tins charged 2s. each.

SODIUM, B.P., one penny per lb. below corresponding prices for POTASSIUM, B.P. IRON AND AMMONIUM (SCALES), B.P., threepence per lb. above corresponding prices for POTASSIUM, B.P. Prices net. All packages charged extra.

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NATIONAL Cash Register, prints sales and adds cash. Perfect, but no longer needed. Reasonable. Write D. Owens, 18 Braydon Road, N.16.

WANTED

REQUIRED to purchase. New or second-hand automatic ampoule filling and sealing machine. Must be in good condition. Please send price and particulars to 359/188, Office of this Paper.

SITUATIONS OPEN**RETAIL (HOME)**

A SCOTTS PHARMACIES (1933) LIMITED, Wembley, require Senior and Junior Unqualified Male Assistants, chiefly for S.E. London and Kent. Send full particulars or telephone, Wembley 2113 for appointment.

JUNIOR Assistant (male) for brisk family retail and dispensing business, London, S.W. Commence £3 weekly. Progressive post for suitable man; state age, height, details of experience and when at liberty. 184/7, Office of this Paper.

JUNIOR: Unqualified (male), for good-class country business, no holiday or Sunday duty; must have had good dispensing experience and passed the Preliminary Scientific. Apply, giving full particulars of age, height, salary required, and photo, to H. Meynell, Tenterden, Kent.

REQUIRED shortly for large Pharmacy. Keen intelligent assistant, not over 35 years old, with liking for brisk counter work, modern window dressing; good photographic knowledge essential; send full particulars experienced, copies references, height, whether married, salary required. E. H. Lester, Rexall Pharmacy, Nuneaton.

RUNWELL HOSPITAL**Nr. WICKFORD, Essex**

Unqualified Female Assistant required for the Dispensary of the above Mental Hospital. Salary £160 per annum or £140 with lunch and tea when on duty valued for Superannuation purposes at £20 per annum.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909, and to the Committee's regulations regarding payment during sickness.

Applications stating age and giving full details of education and experience together with copies of recent testimonials to be forwarded to the Physician Superintendent not later than January 31, 1940.

UNQUALIFIED Male Assistant required, age about 35, for seaside branch. Apply, stating height, experience (with references), salary required, whether married or single, and date disengaged. Recent photo (to be returned). Hinton Lake & Son, Ltd., 41 High Street, Exeter.

WHOLESALE

LANCASHIRE and District. An old-established London House have vacancy for a Representative to call on Chemists in Lancashire and N. Wales to sell Compressed Medicines and Toilet Preparations. Applications invited from men with selling ability, and good personality; some Retail experience essential; part time not objected to. Write, stating age, experience and remuneration required. Fullest details in confidence; no stamps. 360/213, Office of this Paper.

A REPRESENTATIVE wanted by an old-established and leading house, trading with the wholesale trade in galenicals, drugs and oils. A qualified man preferred; well-educated, good address, possessing tact and commercial knowledge. Age about 35. District British Isles. Apply in writing, stating full particulars of past experience and qualifications. 360/210, Office of this paper.

ASSISTANT for Buying Dept. for Bottles, Tins, Paper and other packing material. Age under 18 or over 35. Apply by letter stating experience and salary required to Gale, Bass & Co., Ltd., 274 Ilford Road, S.E.15.

EMINENT British Firm of Manufacturing Chemists marketing Medical Specialities require additional representative for London and the Provinces. A Pharmaceutical qualification is essential. Applicants must give full details of past experiences and qualifications. Write 360/212, Office of this Paper.

PRICING Clerk wanted. Experience of Drug Trade. Apply C. R. Barker, Stagg & Morgan, Ltd., Emmott Street, Mile End, E.1.

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**MEANS PROFIT
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SATISFACTION FOR
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'SUCRETS' Lozenges promptly soothe irritated throats. They are antiseptic. Each batch is tested for germicidal activity. Displayed prominently on the counter, they are a "pick-up item" for every customer with throat irritation.



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'Sucrets' Lozenges are convenient to carry. They are packed 24 in a neat metal box, each Lozenge individually wrapped. They may be carried loose in the handbag or pocket, or kept at the bedside.

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Pharmaceuticals **SHARP & DOHME LTD.** Biologicals
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